AMERICAN BEE JOURNAL

The Oldest Bee Journal in the English Language

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MONTH OF DECEMBER, 1937

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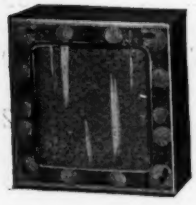

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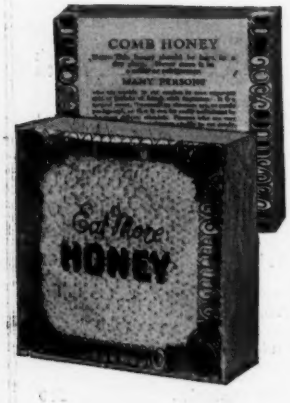

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AMERICAN BEE JOURNAL

Vol. LXXVII—No. 12 Hamilton, Illinois, December, 1937 Monthly, $1.00 a Year

Recent Progress in Industrial Utilization of Honey

By C. A. Browne,

Bureau of Chemistry and Soils,

Washington, D. C.

IT is a great pleasure upon my part to have this opportunity of addressing a group that represents such a wide-spread agricultural industry as that of beekeeping. My personal interest in the chemistry and technology of honey, and particularly in methods of analyzing and detecting the adulteration of honey, goes back to the year 1906. It was just after the passage of the Pure Food Law, when as head of the Sugar Laboratory in the Bureau of Chemistry, of which Dr. Wiley was then chief, I was called upon to cope with the problem of detecting the adulteration of honey with commercial invert sugar. This adulterant was prepared by inverting cane sugar at high temperature with dilute hydrochloric, citric or tartaric acid, and since honey itself consists largely of invert sugar, the problem presented unusual difficulties. I needed a large number of genuine honeys for purposes of comparison and it was in this emergency that Dr. E. F. Phillips, then in charge of the beekeeping work of the Department, became a friend in need by placing at my disposal 100 genuine American honeys with authentic information as to their type and origin. Dr. Phillips thus laid the groundwork of Bulletin 110 of the Bureau of Chemistry upon the Chemical Analysis and Composition of American Honeys which included also a microscopical study of honey pollen by W. J. Young. This bulletin, though long out of print, is still referred to as a source of information upon the chemical composition of American honeys.

Much water has flowed under the bridge in the thirty years since this work was completed and in this time much new information about the chemical composition of honey has been acquired with which I am not wholly familiar. In fact, although maintaining an interest in the subject I ceased in 1907 to be a honey chemist, my activities in agricultural chemistry having been diverted into other fields. Other more competent successors to this work in our Bureau, however, have still carried it on and it is to one of these, Mr. R. E. Lothrop, who has done so much in arranging the exhibits of this meeting, that I am especially indebted for much of the material contained in this paper.

The honey industry is a very widespread one, and affects almost every nook and corner of the United States; there being probably between 600,000 and 800,000 persons in the United States who keep bees. While the monetary value of the honey and wax produced is not great enough to allow us to class beekeeping as a major agricultural industry in the United States, this cash value nevertheless does not represent the true relative economic importance of beekeeping. It has been estimated that the annual value of beekeeping for cross-pollination purposes is between three and ten times the actual cash value of the honey and beeswax produced. Other insects contribute to pollination, but it has been observed that in the early part of the season when fruit trees are in bloom, other pollenizing insects are very scarce. The actual agricultural value of domestic bees is, therefore, far greater than the value of the industry estimated in terms of the product, honey.

I might relate here that during a trip I made to Europe seven years ago, I was much impressed by reports I obtained from various apicultural authorities in Germany. During the years of the World War, bees were greatly neglected in Germany due to the stress of war condition. This neglect of beekeeping at that time was reflected not only in diminished production of honey, but of far greater importance, in the diminished yield of certain agricultural crops in that country, particularly fruits.

Nevertheless, beekeepers keep bees for the revenue derived from the honey and very rarely are beekeepers offered any financial inducement to make their bees available for pollination of fruit orchards and other agricultural crops. Profitable disposal of honey will always be an important factor, regardless of the exact conditions of beekeeping. A decline in per capita consumption of honey is an even more serious threat to future adequacy of pollination of agricultural crops than to reduction in income of some 800,000 beekeepers.

At the present time, the bulk of the honey produced and consumed in the United States is used on the table, principally as a spread and in home cooking. A limited quantity finds an outlet for industrial purposes. Sweetness, flavor and high caloric value have been the foremost consideration in the use of honey as a food. During recent years blander sweets in the form of sirups have come into competition with honey to a much greater extent. As a food honey is not used in the home to the same extent as sirups. The natural physiological craving for products of higher mineral content than honey and the more rapid cloying of the appetite for sweets, produced by honey, are possible explanations for this preference. For this reason it

might be well not to depend too much on increased consumption of honey for table use.

On the other hand, honey has other properties which give it outstanding value for certain industrial and commercial food uses. These properties vary with the composition of the honey which, in turn, depends upon floral type. Among the factors of composition which influence the properties in question are the proportion of non-sugar constituents, the ratio of levulose to dextrose, the proportion of inorganic salts and the proportion of colloidal substances. One of the most valuable of these properties is hygroscopicity, i. e., ability to absorb and retain moisture, which is quite characteristic of honeys containing high proportions of levulose and colloidal organic substances. An investigation conducted by me fifteen years ago showed that honey excelled molasses, commercial glucose and malt sirup in moisture retaining power, being fully equal in this respect to levulose, the most hygroscopic of the sugars. This property should render certain types of honey valuable for the use in commercial baking, particularly for cakes and other sweet goods, as a means of retarding staling and drying out.

More suitable market outlets for honey of certain types which are not well adapted to table use is necessary for the welfare of the honey industry. Such honey is frequently difficult to dispose of for table use even at low prices. Marketing of this honey for such use tends to depress the sale and price of the better grades. It is quite possible that such honey may have characteristics, other than flavor and appearance, which render it well suited for some industrial uses. The development of such new uses will be beneficial both to the honey industry and to consuming industries. In many instances in which the use of honey has been tried for commercial food and other industrial purposes, unsatisfactory results have been obtained because of failure to use honey of the proper type. The use of honey for such purposes has been handicapped and retarded because of the difference in composition and properties of various types of honey which results from the fact that it is a natural product derived from different kinds of floral nectar.

This problem cannot be solved satisfactorily by testing a miscellaneous lot of honey samples for each particular purpose. The composition of honey of different types is so distinct and influences to such a great extent the properties desired, that a chemical study of each type of honey in relation to those properties is essential in order that the type of honey most suited for each use may be properly identified, and adequate sources of supply located. Once this is done and the necessary earmarks of identification established, consuming industries would have far less difficulty in obtaining adequate supplies of honey of suitable characteristics.

An example pointedly illustrating this very thing comes to my mind. Some time ago a large candy manufacturer located in the eastern part of the United States submitted a sample of foreign honey to us stating that it gave more satisfactory results than any of the domestic types of honey they had tried out for their particular purpose. They stated further that they would be glad to use domestic honey, provided a type could be located that would be as satisfactory as the sample of foreign honey for their particular purpose. While an effort was made to locate a supply of domestic honey that would be suitable, the problem was not solved satisfactorily, because of lack of knowledge of the characteristics and composition factors that determine the suitability of honey for that particular use.

A great help in this connection would be the establishment of honey exchanges where the honeys of producers could be graded and classified by experts, in the same way as is done for sirups, coffee and other agricultural commodities. The mixing of products of diverse origin in suitable proportions to produce blends of standard uniformity has been practiced by various trades for many years. It is an art that might be applied with advantage in some cases to the marketing of second grade honeys for obtaining more uniform products for specific industrial needs. The debasement of high quality table honeys of fine aroma for the purpose of improving the flavor of inferior products is of course a practice that should be condemned.

The complete solution of honey utilization problems calls for a comprehensive study of the various chemical factors that determine the behavior of the various types of honey when they are subjected to conditions comparable with those to which they are subjected in use. This is not always as simple as might appear on first observation. There are many constituents that occur in honey in comparatively small amounts, the identity of which has not as yet even been determined. Some of these substances, although occurring in honey only in comparatively small amounts, exert very marked influences on its behavior.

Whereas the gross composition of honeys of various types has been determined quite accurately, comparatively little has been done towards ascertaining the nature and quantities of the less common substances that occur in honey. The limited amount of work that has been done along this line indicates that honeys obtained from different floral sources vary considerably with respect to the quantities of these substances contained therein. Each individual sample of honey is a distinctive product and presents its own distinctive problems.

Let us take, for example, the nitrogenous constituents that occur in honey. American honeys contain only very small quantities of nitrogenous substances. Recent work that has been carried out in the Bureau of Chemistry and Soils shows that the nitrogen content varies from slightly less than 0.02% for a very light honey to about 0.2% for a dark type, the darker-colored varieties (such as buckwheat) in general showing higher nitrogen contents than the light-colored varieties.

Now while these figures indicate that the nitrogenous compounds occur in infinitesimal amounts, they nevertheless play a very important role in the behavior of honey. It is seen also that the extreme variation in amounts present in various types of honeys is very great in comparison with the variation that occurs in the quantities of sugars present. As the figures indicate, the darkest honey contains about ten times the quantity present in the lightest.

A further study has been made to gain some insight into the nature of these nitrogenous compounds. They have generally been considered as of protein nature. However, by subjecting honey solutions to ultrafiltration, it has been possible to separate the proteins present from the other components. We were surprised to find that on an average only about 1-3 of the nitrogenous components were of protein nature, the remaining portion consisting of comparatively simply substances such as amino acids and related compounds.

Compounds such as amino acids are very reactive in the presence of the simple sugars, dextrose and levulose, of which honey mainly consists. On the other hand, they are not reactive towards ordinary cane sugar. The reaction products of the simple sugars and amino acids are dark colored substances of characteristic odor and taste. This certainly would indicate that these substances are responsible partly at least for the darkening that occurs when honeys are stored for long periods of time, or when they are subjected to heat treatment. It also explains, due to the great variations in quantities of these substances occurring in different floral types of honeys, why so much difference is observed in the behavior of these honeys when they are heated or stored.

It is very enlightening to examine samples of honey after they have

been stored for long periods of time. While some keep their appearance and even flavor quite well, others become very dark in color and acquire almost a bitter taste. These same changes can be brought about in a comparatively short period of time by subjecting the honey to heat treatment.

The same type of amino-acid reducing-sugar reaction occurs when honey is mixed with peanut butter and other high protein containing foods. These combined honey mixtures, when freshly made, have a pleasant flavor that augured well for their popularity when they were first put on the market. But after a few months the products began to darken, objectionable flavors were produced and as a consequence combinations of this character soon disappeared from the market.

The presence of proteins in honey produces a tendency in the honey to foam, and to formation of surface scum. Since there is great variation in the protein content of honeys derived from various floral sources, we would expect corresponding variations in their tendencies to foam, etc. This actually is the case and can be demonstrated when the various honeys are tested by means of a standard candy test. In this test a certain amount of the honey is mixed with a definite amount of a sugar mixture and cooked to a definite temperature so as to produce a candy. This test brings out very markedly not only the differences in tendencies of the various types of honey to foam, but also the tendency to darken and caramelize. It was found in this way that nitrogen compounds and other colloidal substances play an important role in foaming and color formation that occur during the cooking process.

These characteristics are, of course, very important when honey is utilized in candy manufacture, in baking, and for other uses where the honey is subjected to heat treatment, and differences in the behavior of various types of honey from this standpoint become an important consideration in selecting the most suitable honey for a particular purpose. There are other points to consider, of course, such as flavor retention, etc.

What I want to emphasize is that it is possible through application of chemistry and chemical research to determine accurately the factors that are responsible for the behavior of various types of honey under various conditions of use. Comparatively little has been done in this direction and much more remains to be done along this line. Such work is by nature slow, and requires patience and perseverence to carry through. In some cases, methods of analysis must be devised in order to determine the quantity of some of these ingredients, since existing methods are not always applicable in the presence of such a high sugar concentration as exists in honey. However, such knowledge once acquired serves as a permanent basis for future understanding and investigation.

Besides the nitrogenous components of honey that I have dwelt on at some length, there are a number of other substances or groups of substances occurring in honey about which precise chemical information is lacking. There are, for example, the so-called dextrins about which there is comparatively little definite knowledge. These substances occur to greatest extent in the honeydew honeys, and their chemical nature and behavior as well as origin should be ascertained more fully. There has been comparatively little done with respect to obtaining a more definite knowledge of the various enzymes occurring in American honeys. Some of these substances, for instance, invertase and the oxidases, may play a role in utilization of honey for certain purposes as, for example, in candy manufacture and in baking.

The mineral components of American honeys are in need of further investigation. We do not know the complete story of the mineral elements of various types of American honeys. Fragmentary information exists relative to the occurrence in honey of certain mineral elements or groups of elements, such as Schuette's work on the iron, copper and manganese contents of American honeys. Work that has been carried out in the Bureau of Chemistry and Soils indicates that the minerals of honey influence the acidity as expressed on the pH scale to a considerable extent. For example, it has been shown that the mineral content of honey affects the degree of acidity (pH) to a greater extent than does the total amount of acid present.

Time does not permit a detailed discussion of the many additional problems that are in need of investigation relative to composition of honey of various floral types in relation to its suitability for various uses. This information would be of considerable value in earmarking various types of honey which would serve as a guide in choosing the most suitable type of honey for the use for which it is to be put.

The general effect of climatic conditions on the flow of nectar and the quality of honey are known to every beekeeper. There is a great lack of information, however, as to the exact composition of nectar, honeydew and other plant exudations that are gathered by the bee. The old method of percolating a bushel of crushed flowers with water and calling the concentrated extract nectar is exceedingly faulty, for many substances are extracted that do not belong to nectar. What we especially need is an application of the recent methods of microchemical analysis to the pure nectar itself, carefully isolated from surrounding tissues by a skillful plant anatomist. An accurate knowledge of the chemical composition of nectar, at various times and seasons, is basic to further expansion in the chemistry and technology of honey.

While some progress has been made in the direction of utilizing honey in various food manufacturing industries, for instance, in baking, there are many problems that are in need of investigation before more progress can be made along this line. In confectionery manufacture the principal difficulties are flavor retention, caramelization, frothing, effect on crystallization (influence of certain honey constituents on the type of crystals formed in the candy mass), and the problem of moisture absorption and retention. It is known that certain types of honey withstand heating (less darkening in color) better than others. While in France a few years ago I observed a cheap popular confection in which the unheated honey, without injury to its natural flavor, was enclosed in an impermeable sugary coating, the method being similar to that employed in the manufacture of the much condemned brandy drop. The manufacture of "honey drops" of various types might be worthy of consideration in the United States. In the manufacture of ice cream and ices, the problems are principally suitability of flavor and influence on the texture and consistency of the frozen mass (including influence on the melting point).

It is very probable that honeys of certain types would be quite suitable for use in treating tobacco for the purpose of moisture retention. Honey has been tried by certain breweries, and while satisfactory in some respects, other desired results were not obtained. This is probably due to failure to use honey of the proper type. The rate and character of the fementation, the effect of the particular honey non-sugar substances on the beer (e. g. influence of proteins and other nonsugars on turbidity and foam characteristics of the beer) are all of importance.

Attractive wines of certain types can be made from honey. There are a number of problems in connection with the utilization of honey for this purpose that require investigation. The preparation of honey vinegar presents problems similar to wine manufacture. Honey intended for vinegar manufacture would generally be confined to lower grades and waste honey. The manufacturer of chewing gum also offers possibilities for advantageous use of

(Please turn to page 593)

Capping Equipment; Wax and Honey Separators

By E. L. Sechrist,

Tahiti.

Honey Getting

SECTION II

Part VII

ALTHOUGH each beekeeper usually works out a method of handling cappings which differs a little from any other method, cappings are commonly handled in one of four ways: (1) Dried in a radial extractor or in a centrifugal drier; (2) Pressed almost dry in some form of screw press which leaves cheeses of cappings to be melted later; (3) Drained in a simple tub, can, box, or tank, into which the cappings fall as they come from the uncapper, and melted later; (4) Melted up at once and without draining, in some form of capping melter, with some kind of apparatus to separate the hot honey from the melted wax. These four methods will be considered separately.

Centrifugal Driers.

Tubs or galvanized iron bushel baskets serve very well as receptacles for cappings if a radial extractor or some form of centrifugal apparatus is used for drying cappings, but if one man works alone, 5-gallon cans are good, as a tub of cappings and honey is too heavy for one man to handle. Some sort of hopper is needed to catch the cappings from a power knife if 5-gallon cans are used as receptacles.

Many operators have discontinued the use of a radial extractor for drying cappings because of the time during which it ties up an extractor for that purpose; or because they dislike the task of putting cappings into and scooping them out of the extractor. Special pieces of perforated metal, and also removable baskets have been devised to lessen this objection, and they do lessen it to some extent.

Draining boxes, as described under the third heading, are also used in connection with drying cappings in a radial extractor used as a centrifugal drier. In this case, the draining box should be elevated, the uncapper standing on a raised platform, so the bottom of the box will be as high as the top of the extractor. Then, when it is time to dry cappings, they may be pushed out of the open end of the box with a fork or scraper, directly into the basket of the extractor, avoiding the unpleasant task of scooping cappings out of the draining box. It still is necessary to scoop the dried cappings out of the basket with the hands.

One of the more recent developments is a separate centrifugal capping drier into which the cappings fall directly from the knife of the uncapper.

At least one type of centrifugal drier is sold commercially, but a beekeeper who has an old 2 or 4-frame extractor may readily convert it into a serviceable capping drier. The plan is to remove the baskets, and around the reel place a strong basket of heavy hardware cloth or perforated metal. No bottom is needed in this basket. Two semicircular baskets are then made, each one of the correct size to slip down inside the new basket at one side of the central cross bar. These baskets are made with the flat side and bottom of galvanized iron and the curved side of hardware cloth of about ¼ inch mesh. Handle loops are fastened at the top for lifting these baskets.

In use, two of these baskets are placed in an uncapping can of the usual style, one on each side of the cross bar which serves as a comb rest and also prevents cappings dropping down into the space between the two baskets. Most of the honey drains out of the cappings and the filled baskets are not too heavy to handle. When full, they are lifted out of the can and placed in the centrifugal drier, being replaced by another pair so that uncapping may continue and work go on without disturbance. The two baskets may be left to revolve for several hours or until the cappings are sufficiently dry.

Trouble is almost certain to be experienced if a home-made centrifugal drier is used without these removable baskets because the reel and bearings are seldom heavy enough to stand the strain of being overloaded as often occurs. Having most of the honey already drained out in the uncapping can, the baskets of cappings, as they go into the centrifugal drier, are comparatively light in weight.

Taking the dried cappings out of these removable baskets is not difficult if, when the baskets are lifted out of the machine, the outside of the mass of cappings which is crowded into the meshes of the wire netting is well wet with water by the use of a cloth or sponge. After being wetted and standing for five minutes, the baskets may be inverted and the cappings will slip out. This avoids the troublesome operation of scooping the centrifuged cappings out of the drier with the hands.

The use of a separate centrifugal drier is much to be preferred to drying the cappings in a radial extractor, for this takes it out of use for extracting during the time the cappings are in it. As a result the cappings are usually removed while they still contain considerable honey, leaving them more difficult and unpleasant to handle than if thoroughly centrifuged. Some beekeepers purchased second radial extractors in order to keep extracting going continuously, but this was an unjustifiable expense, particularly when small extractors of the older types are readily available and may be made into centrifugal driers at little expense.

But removable baskets should always be used with home-made centrifuge as the reel basket will not be strong enough to keep its shape when removing the centrifuged cappings. Small baskets of the same style are made for use in some of the reversible extractors and they are satisfactory for small operations. Their capacity, however, is too limited for rapid work and for handling large quantities of cappings. The commercial honey producer cannot afford to bother with them but must use methods and apparatus adapted to continuous rapid work.

The centrifugal drier and the press described later occupy less space and require less time than do draining boxes or cans, but the centrifugal drier does require the use of power to operate it.

Draining Boxes or Cans for Cappings

For a small installation the ordinary galvanized uncapping can with a false bottom of heavy screen wire will do very well; or two tubs may be used, the upper one having a screen bottom, and this draining tub set into the top of another of appropriate size, into which the honey drains. For a larger installation, a tank or box large enough to hold the cappings from at least a day's run should be provided. This should have a false bottom of hardware cloth so that the honey may drain out and be carried by a pipe into the main honey line or it may drain into a bucket. A box two feet wide and six feet long, with a depth of eight inches or one foot is commonly used and may be of galvanized iron or of wood with an iron bottom.

As cappings in such a box or draining can require three or four days to drain as dry as they are made by a centrifugal drier, the capping box is sometimes made of sufficient capacity to hold the cappings of three or four days, the cappings of one day being pushed to the end of the box so that those from next day's work do not fall on top of the others.

The last honey draining from such a box is likely to be thin, if the climate is damp, and also somewhat discolored because of the pollen and other waste in the cappings. Sometimes a heating coil is encased below the box in order to warm the cappings slightly and facilitate draining. A cover placed on the box at the close of the day's work helps to retain the heat.

Such a box is also frequently used in connection with a centrifugal drier instead of using tubs or cans to hold the cappings and honey. The cappings are well chopped up to hasten the draining and when partially drained are scooped from the box with a shovel or fork into carrying baskets or directly into the drier.

Another style of capping box largely used is made from a hive-body with a bottom of ¼ inch mesh hardware cloth tacked on it, and set on a frame or trough with an iron bottom and outlet to drain the honey away. Several of these boxes are necessary and may be set on a long, iron-bottomed tray or trough, each box, as it is filled with cappings, being shoved toward the far end of the trough and an empty one put into use. Or separate boxes and stands may be furnished each uncapper, empty boxes being used as needed and filled ones, always with the cappings well chopped up, being set on the draining trough or on top of each other with a galvanized iron tray between so that the honey will drain from each box separately and fall into a bucket or drain pipe. For a temporary or portable installation, these hive-body draining boxes set on top of each other are very satisfactory, and they are well liked by many because there is no scooping of cappings out of a large box. These small boxes of cappings can be handled and dumped readily by one man and require very little time to empty.

Capping Presses.

These have the advantages of being inexpensive and of separating the cappings and honey quickly and without any deterioration of the honey.

Small presses of various kinds, like cider presses may be used. The best style, however, is a strongly constructed box, slotted or stripped inside so the honey may run down to the bottom and drain out quickly, used with a follower board and a jack screw or, in a large box, two jack screws may be used. Above the jack screws and just beneath the heavy cross bar which forms the top of the frame of the press, is placed a pair of heavy automobile springs, so arranged that the jack screws may be placed on top of the follower board in the press and below the two springs. The jack screws are turned up, compressing the springs. After the day's work is done, the box full of chopped up cappings is slid into place on the press, the jack screws turned and the springs compressed. Then the operator goes home, reads the newspaper and forgets all about the matter. As the honey drains out and the cheese grows smaller, the springs take up the loss and keep on pressing out the honey all night long. In the morning the cheese is very dry. In the usual screw press, one must tighten up the screw again and again, but the use of the above simple apparatus avoids this troublesome process. The cheeses of cappings may be stored in some tight room until a convenient time for melting wax arrives and it does not matter if it is not done until fall when all outside bee work for the season is over.

On the whole, I doubt if there is any other way of handling cappings that is so simple and satisfactory.

———*ABJ*———

Battery of extractors and a long uncapping box. The box has a sloping rack with round iron rods, on which the frames slide easily.

New Bulletin

"Brood Diseases of Bees in California" is the title of a new bulletin recently issued by the Department of Agriculture at Sacramento.

The three common brood diseases, American foulbrood, European foulbrood and sacbrood are considered. A discussion of the cause, symptoms, diagnosis, method of spread and means of eradication of each disease is condensed in twelve pages. At the close is a brief mention of the loss of brood by poison.

H. M. Krebs, chief apiary inspector, is the author. To secure a copy write to Mr. Krebs, Department of Agriculture, Sacramento.

———*ABJ*———

The Story of Honey

A very attractive booklet, intitled "The Story of Honey," comes to us from the Department of Agriculture of Victoria, Australia. The cover printed in colors shows a boy with a slice of bread spread with honey with a background of bees on the comb.

The contents of the publication emphasize honey for health with convincing descriptions of the product of the hive and testimonials of physicians as to its value as food and medicine. There are several pages of honey recipes including such medicinal uses as for coughs and chapped hands.

This most attractive booklet of 24 pages should do much to gain confidence of the Australian public in the use of the product which it terms, "bottled sunlight" and which is described as the "cheapest food there is."

Gathering of beekeepers at the International Beekeepers' Congress at Washington, October 25-27.

Washington Beekeepers' Congress Report

In Two Parts — Part One

THE International Beekeepers' Congress, October 25-27 is now a memory until we meet again at New Orleans in December, 1938.

A nicer time could not have been chosen for the visit to the nation's capital as the surrounding country and the mountains in the north and west were in full color, the weather was ideal, and the temptation to make a vacation out of the occasion was excellent. Beekeepers and their wives, inspectors, state officials, package shippers ganged up to the total of about five or six hundred for the occasion.

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There was a shortage of commercial honey producers. What's the matter with you boys? Too short a crop? Even so, we still have the automobile and the hard road so don't pass up too many chances to improve your situation in the industry. There was a fair representation, however, with attendance from 33 states, 3 provinces and the District of Columbia.

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The committee is to be complimented on taking advantage of the fact that the meeting was in Washington and so built the program around those government agencies which are doing their best to help us with our problems. As in previous meetings, the apiary inspectors of America, the Southern Beekeeping Conference, the American Honey Producers League, the Queen Breeders and Package Shippers' Association, American Honey Institute and the National Ladies' Auxiliary had regular sessions and definite parts in the program. In addition the Virginia Beekeepers' Association had their regular annual meeting on Monday evening. T. C. Asher remains president and W. A. Caldwell secretary.

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The initial meeting of the apiary inspectors on Monday brought the appointment of a committee under the chairmanship of Reese, of Ohio, to advance a plan whereby the federal government shall establish minimum requirements for the movement of bees on combs in interstate shipments. The majority of states are favorable to such a regulation. Many states would have their own and enforce them but for the fact that funds are short. So the committee has before it the job of finding a workable plan for the control of interstate movement of bees so the danger of the distribution of disease will be brought to the lowest possible point and yet no damper be put on the necessity for migratory practice.

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Membership among official inspectors in the organization of Apiary Inspectors of America now includes 35 states, with the obvious purpose of furthering the exchange of information, closer organization, improved methods in inspection, cooperation in efforts to determine resistance to disease among bees, and cooperation with the League and the Institute.

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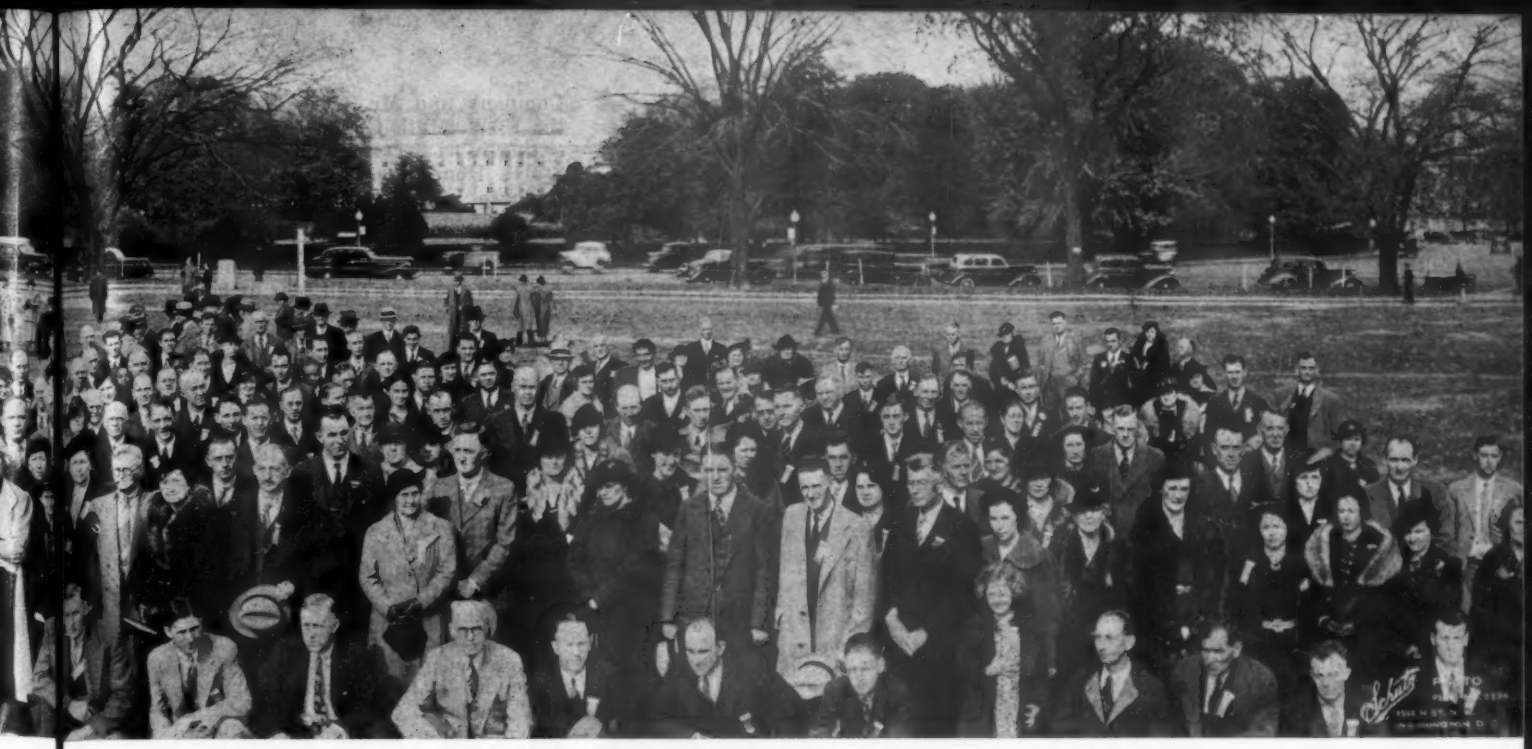
Mr. Rohwer—In absence of Bureau Chief Lee Strong of Entomology and Plant Quarantine Assistant Chief Rohwer addressed the open meeting of the Inspectors outlining the activities of the Bureau of entomology from the early days when H. M. Glenn first undertook the work through the days of Frank Benton; the first appropriation in 1901; the establishment of the Bureau of Entomology in 1904; the appointment of Dr. Phillips in 1907 whose activities, largely emanating from Washington for 14 years, brought many changes and important improvements in our industry. These were the days of Snodgrass' "Anatomy of the Honeybee," Nelson's "Embryology of the Honeybee," White's investigations on foulbrood, Casteel on pollen, and DeMuth's work on beekeeping practices, with the three objectives of research, education and extension.

In 1924, Jas. I. Hambleton, our



In this area, south of the White House, the beekeepers gathered for this photograph and for beekeeping demonstrations.

present senior apiculturist of the Bureau of Entomology and Plant Quarantine, was appointed and the major contribution of his office until the present time has been the establishment of regional laboratories of the department at Laramie, Wyoming under Dr. Sturtevant in 1924, at Baton Rouge under Dr. Whitcomb in 1928 and under Frank Todd at Davis, California in 1931. The National Research center at Beltsville is now the location of the bee culture office formerly at Somerset, Maryland.

Important projects under Hambleton's direction have been studies in honey production costs, the establishment of U. S. honey grading standards, improvements in standardization of the package shipping cage, a study of pollen reserves and now the newly established project in cooperation with Iowa State College in disease resistance.

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C. W. Kitchen, Assistant Chief, Bureau of Agricultural Economics—This Bureau is a fact finding establishment which collects all imaginable data in the field of agriculture and is without equal anywhere else in the world. Under the leadership of Dr. Phillips, Harold J. Clay developed the present honey market news letter which accumulates information on honey plant and colony conditions throughout the year, climate, rainfall, crop, honeyflows, the price and movement of honey both at the point of origin and at the market centers. This honey market news letter is valuable and free to any beekeeper in the United States who requests it. Address your communication to the Bureau of Agricultural Economics. Ask for the Honey Market News Letter to be sent to you without cost.

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Dr. C. A. Browne, principal chemist in charge of research, Bureau of Chemistry and Soils, "Recent Progress in the Industrial Utilization of Honey." This paper appears in full in this issue on page 563.

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1938 Officers—Apiary Inspectors of America: President, J. E. Starkey, Indiana; Vice-president, H. M. Krebs, California; Secretary-treasurer, Clay Lyle, Mississippi.

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Southern Beekeeping Conference, Monday and Tuesday.

All the minutes of meetings of the Southern Beekeeping Conference are on file at the Southern Bee Culture Laboratory of the United States Department of Agriculture at Baton Rouge, Louisiana.

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President Reese—Beekeepers do not use or appreciate the results of research or the extension assistance which is theirs if they wish to use it. A good example is the fact that although Clay's Honey Market News Letter brings American honey markets down to an understandable basis for the entire country right to our door and is available for free distribution, nowhere near as many beekeepers are taking advantage of this assistance as should be. The United States has established grading standards, yet few beekeepers take advantage of them. The United States in soil conservation efforts is advancing the use of legumes, many of which are honey producing, yet few beekeepers understand this service.

There are many problems to be studied to the advantage of beekeeping. The movements of bees and its relation to the distribution of disease, the question of overstocking. We need an educational program on the value of bees in agriculture. We need help in orderly marketing and in orderly financing of our League and Institute. We need a coordinated investigation of the problems of our clover belt.

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H. H. Root—"What of the future?" The probable crop of this year is 125,000,000 pounds; yet measured in volume of some of our lesser agricultural products, that is small. The crop of peanuts in Georgia, for instance, is three times that of honey in the entire country. Honey is an unstandardized product and for use in baking, for instance, the water content varies so much that honey must often be rejected for this purpose. Also, much honey is extracted too thin. Honey should weight at least 11¾ pounds to the gallon. Why should we chance losing this rich market by carelessness?

Comb honey either in bulk or sections is honey's best advertiser. It has never been imitated and resembles nothing else in the food product line. Four out of five women prefer comb honey. Yet hundreds of markets do not have it.

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H. C. Dadant—"The Search for Disease Resistant Bees." This paper will appear in a coming issue of the Journal.

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North Central Laboratory—Under

the leadership of Anderson of Louisiana, a proposal was made to the Bureau of Entomology for the temporary establishment of a north central laboratory to study the problems of queen supersedure in package bees, the beekeepers of the north to supply the equipment for 500 colonies and the breeders of the south to furnish 500 packages of bees under the leadership of American Honey Producers League, so that the Bureau of Entomology will have 500 colonies for the work necessary for this project.

The Southern Conference membership and the League membership endorsed the program and a committee under the chairmanship of Herrold of Alabama was appointed with the following members: Bessonet, of Louisiana; Root, of Ohio; Cale, of Illinois and Iowa; and Schmidt, of Michigan. The project received the approval of the Bureau of Entomology with their promise that the laboratory under the leadership of Hambleton would be established at the time the bees and equipment were available for the use of the department.

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D. V. Gooderham — Dominion Apiculturist of Canada—The 1937 crop was 50 per cent in Ontario, 75 per cent in Manitoba, 50 per cent in Saskatchewan, normal in Alberta, bumper in British Columbia, small in Quebec.

The big problem with the Canadian beekeeper is grading. Export and inter-provincial honey is graded under compulsory regulation. Provincial sales are graded on request of the producer. The inspectors examine the quality of honey for export and inter-provincial honey is subject to inspection.

Canada takes one-third of the United States package bee production amounting in 1936 to $117,000. Canada has a prohibition on the importation of queen bees just as we do in the United States, each province having its own inspection and inspection laws and general burning is the method or eradication used for disease.

For export grade, honey in Canada must not contain any more than 17.8 per cent moisture for No. 1 honey and 18.6 for No. 2. Otherwise the honey will not keep well. This year, the honey is wet.

Kenneth Hawkins, G. B. Lewis Company, Wisconsin—The weakest link in our honey problem is marketing, even more than disease. There are three kinds of beekeepers; the hobbyist who is usually good; the commercial who is big, and usually fair-minded; and the casual beekeeper who is a genuine nuisance, careless and indifferent.

Some beekeepers are good distributors, but most are not, and they too often set our price. It is hard to find a quick market at a fair price in 5 gallon cans. Local beekeepers do well to buy peddler honey and get it off the market to avoid its influence on the price.

Queen Breeders and Package Shippers.

J. M. Robinson, Managing Director—On the Archives Building in Washington is written "What is Past is Prologue—Study the Past!" Everything in beekeeping from Samson's lion to Langstroth's hive was prologue for us. New issues face our industry. We are rapidly passing the consideration of bees merely for the production of honey and wax into an understanding and appreciation of their value in commercial pollination. Also, because in the northern climates, conditions cause losses, the south has developed a business of replacing those loses. Cooperation between the two groups means the life of the industry.

Remember among either one the chiseler can wreck our business. Because of this fact the Trade Agreement among southern package shippers and queen breeders arose and this Agreement is now protected by constitutional law.

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Because of the shortness of time, the queen breeders and package shippers' session was at this point verged into a continuation of the Southern Beekeeping Conference program. E. S. Prevost, President, in opening remarks, mentioned the necessity for cooperation between the North and South in the problems of the shipper, rates of express for packages and the need for placing both the business of breeding and the distribution of bees on a sound basis.

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New Officers—Southern Beekeeping Conference.

President, L. M. Dewey, Florida; Vice-president, Fortune, Mississippi; Secretary-Treasurer, Dowling, Ga.

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Dr. Eugene C. Auchter, Assistant Chief of Plant Industry, "The Importance of Pollination in Fruit Yields." We expect to have Dr. Auchter's paper published in a later issue.

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Mr. George Bohne, of Louisiana, was appointed to life membership in the American Honey Producers' League.

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American Honey Institute Report.

The Board of Directors of the American Honey Institute were called to order by Vice-chairman E. R. Root on Monday, October 25th. Meeting with Directors were President R. H. Kelty and Chairman of the Finance Committee, H. F .Wilson. Also present were Mr. Arthur Hoffman of the John G. Paton Company and Mr. Clifford Muth of the F. W. Muth Company, the latter sitting in as Secretary of the Central States Honey Packers Association.

There was a thorough discussion of the new proposed plan of financing the Institute by having the honey packers and honey buyers collect 3 cents on each case of honey bought from the producer. All packers present indicated that they were in favor of this proposition and Secretary Muth stated that the plan would be placed before the Central States Honey Packers' Association for their consideration at their next regular meeting.

There was a discussion of the finances of the Institute and the matter was left in charge of the executive committee consisting of Chairman Geo. C. Lewis, H. F. Wilson and R. H. Kelty.

The following Board of Directors was elected: Thos. Atchison, M. S. Stone, E. R. Root, T. W. Burleson, L. C. Dadant, G. C. Lewis, E. G. Brown, Arthur Hoffman and Clifford M. Muth.

Mr. Lewis Parks was made Chairman of the Advisory Committee and given authority to add whatever members he might wish to his Advisory Board.

A report was made by Finance Chairman H. F. Wilson in regard to the finances of the Institute. A full account of the receipts and expenditures will be published in the annual report of the Institute and each contributor to the Institute will be sent a copy. R. H. Kelty made a report on the general setup of the Institute, its projects and future aims.

It was the consensus of opinion of the entire Board of Directors that the next six or eight months would be the most difficult that the Institute has ever encountered due to the fact that there was such a short honey crop. It was their recommendations that everyone be urged to give every possible support to the Institute.

[This report will be concluded in the January issue.—Editor.]

—*ABJ*—

Don't Frighten Your Prospect

This present season is the third in succession in which honey production has fallen short of market demands, but experience indicates that it is not very good policy to stress this fact when selling to retailers. It seems that too often the first effect of such an argument is to cause the buyer to visualize in his mind a soaring price, with reduced sales and greater risk to him as a result. To counteract this he begins at once to cast about for a substitute for your product. If you have to go up on the price it may be necessary to give your reason for doing so; but it is good business to say as little about it as possible.

Notes from Australia

By C. E. Schmidt,

Ngapala.

WE Australians were greatly interested to read the article in the American Bee Journal by the Egyptian correspondent on the Carniolan bee, and we were doubly interested by his reference to its adoption by us.

As a Carniolan queen breeder or faddist, (whichever it may be) of some years standing, may I give the reason why the impression has got abroad that the government of Australia has endowed the Carniolan with its generous support.

I believe that the South Australian government is the only one in the world that has granted any queen breeder exclusive beekeeping rights in certain areas, but in spite of the publicity given to the fact that the S. A. government has allocated numerous queen rearing sanctuaries, some of three hundred square mile areas, for the breeding of the Strgar, and other strains of Carniolan bees and queens, the fact remains that in the early days of this state a sanctuary was proclaimed on Kangaroo Island for the rearing of Italian bees as this proclamation is still in existence but not used as such to my knowledge.

No Italian breeders in this state bother much about sanctuaries to secure purity of matings because of reasonably pure matings being obtained in the competitive fields of the open ranges.

The reason for the necessity of securing absolutely pure matings for the Carniolan is that mismating produces a much greater contrast to the pure stock in the Carniolan than in the Italian. To say that Carniolan holds the lead in popular choice is quite incorrect, even in its foster state South Australia.

A perusal of the columns of the Australian Beekeeper, Australia's leading bee journal, reveals the fact that Italian queen breeders outnumber Carniolan by three to one, in fact some of the latter have changed to Italian recently putting the balance even further in favor of the Italian.

Australian beekeepers are handicapped to no mean extent by very stringent import regulations and by lack of organization they have no means of securing any attention to their requirements from the Federal government.

Conditions prevail here identical with the U. S. A. and both Carniolans and Italians have supporters from the snow line to the tropics but in the heavy honey producing districts Italians are preferred.

I venture the opinion, based both on personal experience and the observation of reports in bee journals, that the process of artificial insemination has given very satisfactory results, not unnaturally expected of it, but it is a difficult process and as a definite improvement in stock has resulted we must persevere with it until some more simpler or more satisfactory process has been perfected.

The process of handmating, as it is generally termed, has received casual reference from time to time and from experience I can say that this method has possibilities. I have had many successful matings from

(Please turn to page 594)

One of the author's apiaries.

Will Grigg, one of South Australia's pioneer beekeepers, standing beside a pet colony, used for cleaning up wet extracting combs.

Christmas

Christmas comes this year at a time of great social unrest. The so-called civilized world is in a state of turmoil and confusion not at all in accord with the Christmas spirit of "Peace on earth, good will to men."

At this distance it is not possible for us to understand the reasons for the conflict in China and in Spain but we do know that conditions are anything but peaceful. The danger is that this conflict will spread like a prairie fire before a strong wind until it overtakes nations far from the present centers of disturbance.

How much happier this old world would be if the spirit of Christmas included all people and extended throughout the year. The so-called Christian nations while professing the teachings of the Nazarene too often practice quite differently.

The return of the annual festival of Christmas serves to remind us of personal obligations to friends and loved ones and provides opportunity to show interest and appreciation to others not so close. Let us make the most of the occasion.

Beekeepers as a class are among the most friendly and peaceful of men. It is the source of great satisfaction that our honey crop comes to us without cost to our neighbors. In gathering the honey for their owners, the bees pay an equal or greater service to the owners of the flowers which they visit.

The only hope for this war-torn world is to cultivate a spirit of give instead of grab. If we as individuals practice the golden rule those with whom we come in contact may be moved to do likewise. Perhaps the movement may spread and in time counteract the present tendency to destroy.

Let us begin with a very sincere wish to all for a "Merry Christmas" and for a new year that is happier than the old one has been.

———ABJ———

Institute Finances

The short crop of honey throughout the United States has caused a severe downturn in the funds that the American Honey Institute has been able to collect during the past few months. The prospects for getting in funds from new sources for the next few months is not at all encouraging. It is necessary, therefore, that all beekeepers who have been supporting the Institute in the past make an extra effort to send in their contributions in order that the Institute may continue to function and not lose ground.

Seeing the difficulties in which the Institute might be placed, the bee supply manufacturers at a meeting this fall voluntarily doubled their contributions. There are, of course, some bee supply manufacturers who still do not contribute but the rank and file are behind the Institute and as indicated have doubled their subscriptions. This, however, will not be sufficient to carry the Institute through until the new crop comes in and new funds become available. For that reason every beekeeper and everyone interested in the Institute should take particular pains to send in their contributions as promptly as possible.

For some time the Finance Committee of the American Honey Institute has been working on a new plan for the financing of the Institute. This plan is based on the payment of 3 cents per case of 120 pounds of honey by each producer as his honey is sold. It is intended that this contribution of 3 cents per case shall be collected by the honey packer or honey buyer at the time of the transaction and turned in to the American Honey Institute for advertising honey. Where the beekeeper sells his own honey, he should remit as usual.

Several of the buyers and packers in California have already signified their intention and are already making collections on this basis. Other packers in the Middle West and East have been contacted by friends of the Institute and practically all of them have signified that they would be glad to enter into the plan. The beekeeper, of course, must give his permission before the contribution of 3 cents per case can be deducted from the remittance at the time that the sale is made but no doubt there will be very few who will not agree to such a plan.

The big difficulty lies in the fact that this plan cannot be put into operation until the new crop is harvested in the summer of 1938 and for that reason the above appeal has been made.

The splendid work of the American Honey Institute should not be allowed to lapse. The persons in charge of the Institute are doing everything they can to carry on with the funds available but salaries must be met and office rent must be paid if the Institute is to survive.

One of these years we are bound to have an old time bumper honey crop, a crop that will overwhelm the market unless we, as producers, have had the foresight to prepare for it. The Institute is the best instrument we have to lay plans to move that bumper crop at fair prices.

This short report is, therefore, an appeal to you, Mr. Beekeeper, to contribute your share on the basis of $1.00 per ton for the past season's crop or for an outright contribution, as large as you can afford.

———ABJ———

Poor Winter Prospects

The season of 1937 has been a very poor one for beekeepers over a very large area. With the shortest honey crop in several years the bees have not had favorable conditions for getting ready for winter. Thousands of colonies have been short of stores. This could be remedied by liberal feeding but the small clusters of bees and the short supply of reserve pollen are not so easily cured.

The indications are, that should the winter be one of severe cold, losses of bees will be very heavy. Unusual care should be given in the winter preparation to make the most of what bees we have. Light colonies can often be brought through successfully with sufficient attention. Plenty of feed and ample protection will go far to save the weak colonies. We will need them next spring.

———ABJ———

South for Increase

Just now taking bees south for the winter with the intention of making increase to return for next season's crop is a popular idea. So many beekeepers are doing it that the question at once arises as to whether it really pays them.

A little inquiry brings out the fact that in many cases they go because it gives them a good excuse for a trip south. Whatever they are able to gain in the way of increase is that much to the good.

After talking it over with a number of men who have trucked their bees south in the fall and back again the following spring, one is inclined to be skeptical concerning the profit from the transaction.

One man who started an apiary in the south nearly twenty years ago for the purpose of securing his own packages reports that it no longer pays him although he secured a good profit during the years when prices were high.

Considering the risk of loss in transit and the danger of fire and theft in strange localities, it would seem that the resident breeder who lives all the year in the south could produce the bees cheaper than his northern cus-

tomer who goes south for a short period and who must meet all the extra expense that such a move entails.

One finds a great difference of opinion among those who have tried the venture. A few report favorably, others are giving it up as unprofitable.

———ABJ———

A Monumental Work

The yearbooks for the United States Department of Agriculture for 1936 and 1937 bring together a mass of material on breeding such as is probably nowhere else available. The 1936 volume was devoted to the grain crops and the principal farm animals. The current volume is given over to fruits, flowers, vegetables and other minor crops as well as such animals as poultry, dogs and bees.

The story of the miracles that have come as a result of the work of plant and animal breeders is a fascinating and amazing one. Results already obtained give confidence that far better things are still to follow.

Certain farm animals and field crops are the result of breeding that has extended over periods of thousands of years. One has only to remember that the Cochin, Leghorn and Bantam fowls are probably all derived from a common ancestry to see the possibilities of breeding.

As applied to the field of the beekeeper, breeding is a new thing. The various varieties of the honeybee apparently are the result of natural selection without conscious effort on the part of the beekeeper until very recently. In fact the entire present day practice of honey production is a very new development. As late as the days of our grandparents bees were kept in primitive hollow logs or straw skeps and thrived without attention on the part of their owners.

More than twenty pages of the late volume are given over to a discussion of bee breeding, written by W. J. Nolan. Nolan gives a most illuminating picture of the whole field of breeding of the honeybee.

One closes the book with a feeling that we may be entering a new and important period in the history of honey production. Once let properly trained men take up the problems of improving the bees and we can anticipate results similar to those obtained for poultrymen, dairymen and others in specialized fields. Dr. Watson has provided the means of securing controlled matings, something essential to rapid progress.

The honey plants are an entirely unworked field and it is to be hoped that before many years serious effort will be made to improve the nectar yielding qualities of important crop plants. That such improvement is possible no one can doubt. With even a small part of the progress that has come in bettering the quality of orchard fruits and garden flowers, the yield of nectar could be greatly increased.

Readers who are of a scientific turn will do well to ask their congressmen for copies of these two fine books, especially the one for the year 1937.

———ABJ———

Uncertainty

Just now there is grave uncertainty on the part of business as to what lies ahead. There is a falling tendency in prices of commodities and stocks have suffered a drastic decline. Some feel that we have already passed the peak of the present recovery and are facing another period of depression. Others contend that is is merely a temporary pause in the upward climb. Since nobody seems to know there is not much that we can do about it.

Reports indicate somewhat lower prices for farm products during the coming months with higher labor costs and higher prices for what the farmer must buy due to increases in the cost of manufacture of all machine made goods. Fortunately for the beekeeper his overhead is relatively low in comparison with other branches of agriculture and is thus in better position to adjust himself to changing conditions.

———ABJ———

Planting for Bee Pasture

A reader who is located near a large area of unused lowland writes to inquire what he can plant to improve his bee pasture. While it is commonly stated that it does not pay to plant crops for bee pasture alone we feel that it might pay very well in a case like this. Our correspondent would be at no expense for cultivation or taxes and his only expense would be for seed and planting.

Two things suggest themselves as promising. The first is the buttonbush or button willow, (**Cephalanthus occidentalis**), which is a shrub native to the Mississippi Valley. It grows commonly in shallow stagnant water and along streams from New England to California and south to Texas so should be suited to almost any section of the country. Here in the middle west it grows to a height of six or eight feet under favorable conditions but is reported to reach the height of a small tree in California. The honey is of good quality and where large areas of wet land are available the beekeeper might do very well to devote some attention to naturalizing this shrub on an extensive scale. The white clusters of flowers which appear in midsummer are very attractive and have the appearance of small pincushions. It is a very desirable ornamental for parks or home grounds.

Another promising plant for wet lands is the purple loosestrife, (**Lythrum salicaria**) which has already become naturalized along the streams of many eastern localities. There are native species of lythrum common from Ontario to Minnesota and south to Florida and Texas which might be naturalized in new localities with profit to the beekeepers of the locality.

With large areas now being set aside for state parks and wild life refuges, some attention may well be given to the possibility of planting perennials which are the source of honey.

———ABJ———

Immunity to Bee Stings

The October number of Bee Craft contains an interesting article on bee stings by Dr. F. Thompson. He states that the protein nature of the virus which stimulates the animal body to manufacture a counteracting substance, was first demonstrated by Dr. Keith Thompson in 1930. From the article we quote:

> "This is an important fact, for it explains the reason why beekeepers become to a large extent immune from the ill effects for a reasonable number of stings. This counteracting substance unless renewed, slowly disappears from the blood, and after a period of some months it becomes so dimished that after a sting the old swelling reappears again. This explains why, at the beginning of each season, and after the beekeeper has been about six months without stings, he swells after the first few stings, until he has again established his immunity."

The indications are that immunity to stings varies greatly with individuals and that some are able to establish a much greater degree than others. Likewise it appears that some maintain this immunity for a much longer period. The writer was very susceptible to stings when first he took up beekeeping. After a time very little effect was apparent even though a dozen or more stings were received.

After having spent several years in office work without exposure to stings the question was raised as to whether any degree of immunity still remained. It was something of a surprise to find that stings had little effect after this long period. Even though no stings had previously been received for several years there was but little swelling and such unpleasant symptoms as were manifested quickly subsided. In this case the immunity apparently persisted for a much longer period than that mentioned by Dr. Thompson.

———ABJ———

Thin Nectar

The November issue of American Fruit Grower calls attention to the low sugar content of the nectar found in the blossoms of the Bartlett pear. The fact that the nectar from this source contains only ten per cent of sugar is given as the reason why fruit growers have difficulty in getting bees to work on Bartlett blossoms. With Italian prunes offering nectar with 41 per cent sugar, Oregon grape 63 per cent, maple 67 per cent and willow 70 per cent it is not surprising that the bees neglect the Bartlett.

Recent investigations are bringing to light some very illuminating facts with relation to nectar secretion and flower pollination.

Honey For Your Christmas Candies

By Eva Stewart,

Indiana.

ONE of the most welcomed remembrances at Christmas time is a box of homemade candies. Everyone has some favorite recipes which have been successfully tried year after year on the family but why not be different this year and use honey for part of the sugar if you do not do so already. Many candies improve with age which is a good point to be remembered as the busy season approaches.

Honey blends particularly well with other sugars producing a fine flavor. It also creates a finer and much smoother textured product and just as honey keeps pastry moist so will it keep candy moist. Although honey candy takes a longer cooking period the finished product does not dry as rapidly and the flavor improves with age.

Keeping these facts in mind you can make your candies early and wrap each piece of candy individually in cellophane or waxed paper because of the tendency to retain the moisture will cause them to be sticky and spread.

Try the following recipes for this year's Christmas box.

(Recipes from the American Honey Institute and the Detroit News Honey Cookery Contest.)

* * *

Honey Nut Fudge.

2 cups of sugar
1 square of chocolate
1 cup of milk
Pinch of salt
¼ cup strained honey
½ teaspoon of vanilla
1 cup of broken pecans or other nuts

Cook the sugar, chocolate, milk and salt for 5 minutes. Add honey and cook to the soft ball stage. Remove from fire. Cool and beat until creamy. Drop from spoon on to a greased paper to form patties.

* * *

Honey Taffy.

1 cup honey
1 cup sugar
1 cup cold water
1 teaspoon of vanilla or other flavors

Boil honey and sugar together until mixture forms hard ball in cold water (270 degrees F.) Add vanilla. Put in buttered dish to cool and pull until white. If the pan the honey is cooked in is buttered around top, the honey will not boil over. It is possible to vary these proportions widely and always get a delicious taffy.

* * *

Honey Dried Fruit Candy.

2½ cups of honey
¾ cup powdered milk
¾ cup chopped dried figs
1 cup chopped dried apricots
1¾ cups melted unflavored plastic cocoanut fat
¾ cup chopped dried prunes
¾ cup raisins
¾ cup chopped walnuts

Add honey to melted fat, add milk powder and salt. Beat until mixture begins to thicken. Add chopped fruit and nuts. Spread on oiled slab to harden. Cut into desired size or shape into bonbons and dip in chocolate. The fruit should not be bone dry; yet avoid excessive moisture.

* * *

Honey Fruit Strips.

Orange peel
Honey
Salt
Water

Remove peel from 3 oranges, cut peel in strips. Cover with water to which 1 teaspoon of salt has been added. Boil 30 minutes, drain, cover with fresh water, boil until peel is tender. Drain, add honey enough to cover, from ¾ to 1 cup. Let simmer **very slowly** until peel is clear (about 45 minutes). Lay on waxed paper and let stand 2 to 3 days before using.

Variations:

Grapefruit peel and lemon peel may be similarly prepared. Fruit strips may be rolled in cocoanut or nuts. Peel may be coated with confectioners' chocolate. Peel may be chopped and used in cookie, nut bread, muffin mixtures.

* * *

Prize Winning Honey Caramels.

1 cup honey
1 cup corn syrup
1 cup sugar
¼ lb. butter (½ cup)
1 can condensed milk (sweetened)
1 cup chopped walnut meats

Boil one can sweetened milk in unopened can for 2 hours. Be careful to keep can covered with water. Open and blend contents with the butter, honey, sugar and corn syrup.

Boil slowly in **heavy** saucepan stirring constantly until mixture forms firm ball in cold water (250 degrees). Remove from fire, add nuts, pour in buttered pan. Chill and cut. Wrap each caramel in heavy wax paper.

Honey Drops.

2 tablespoons honey
1 cup boiling water
2 cups white sugar
2 tablespoons butter
2 egg whites
2 teaspoons almond extract

Pour the honey into the boiling water and add sugar. Boil slowly until syrup dropping from a spoon leaves a thread behind it. (250 degrees Farenheit). Pour the syrup over the stiffly beaten egg whites and add the almond extract. Beat until it is cold and just as stiff as can be handled. Drop on a waxed paper and let cool. A nut meat pressed on the top of the candies makes them still more attractive.

* * *

Don't you think it is time for you to be making that Honey Fruit Cake for Christmas?

1 cup honey
½ pound butter
5 eggs
2 cups flour
2 teaspoons baking powder
4 tablespoons allspice
2 cups chopped pecans
1 cup chopped almonds
2 cups currants
2 cups seedless raisins
1 cup dates
½ pound orange peel
½ pound lemon peel
¼ pound citron
¼ pound glazed pineapple
½ pound candied cherries

Sift flour and measure. Divide flour into two equal parts. To one add baking powder and allspice and sift twice more. Cream butter well. Add **honey.** Add well beaten egg yolks. Add sifted dry ingredients gradually. Fold in stiffly beaten egg whites. Roll nuts and fruits (except cherries and pineapple) in remaining flour. Add to dough mixture. Add cherries and pineapple. Bake in slow oven (300 degrees) 2 to 2½ hours.

* * *

A Favorite

To save time try **honey butter** on your toast, biscuits, bread, etc. ¾ cup **honey** and ¼ cup of butter blended together. This is especially good for the smaller members of the family who like bread, butter and honey. The honey will not run off of the bread and get all over their fingers and now and then on their clothes.

Suggestions About Package Bees

Warren L. Whitcomb.

A summary of the remarks of Warren L. Whitcomb, of the Federal Bee Culture Laboratory, before the Alabama State Beekeepers Association, at Birmingham, September 30, 1937.

THE loss in package bees in shipment has decreased greatly since 1928-29 when the loss was 10 to 15 per cent of the entire amount of bees shipped and is now less than 1 per cent.

The losses now are attributed chiefly to the errors of the shipper due to the fact there are still many shippers who are not taking the nationally accepted uniform shipping package and uniform method of crating. Some shippers do not crate the packages sufficiently far apart so that no provision is made for air while in transit.

Dr. Whitcomb suggests the desirability of having the crating strips on top of the packages and not on the ends so that the crates would ride evenly in the cars.

Dr. Whitcomb gave an idea of the cooperation between the Southern Field Station and the field stations located at Laramie, Wyoming, and Davis, California and also in cooperation with beekeepers generally in the north.

Some 770 packages were shipped this year into Colorado, Wyoming, Nebraska, Kansas and Iowa on a cooperative basis. The 2-pound packages apparently are a minimum for a buildup for honeyflow. He recommended 25 per cent overrun on the weight of packages. A 2-pound package will, on the average, shrink one to seven ounces in shipment depending upon the honeyflow at the shipping end. Out of one shipment of 110 packages of the 700 packages tested, 22 packages were underweight which meant that they would not be producers during that season. With the weak packages also, there is a greater amount of drifting.

Use of packages for strengthening colonies for the honey yield was tested. It is true that strengthening of packages will increase the honey yield but it has not been definitely determined that this can be carried on generally throughout the honey producing areas on a profitable basis, even though some areas may profit directly thereby.

Experiments are being conducted also at the Station with reference to colony management for package bee production. The 10-frame hive was originally planned for comb honey production where it was necessary to force the bees into the super. A modified practice with the same hive has been used both for the production of honey and production of bees. The experiment so far has been carried on for one year. It is apparently true that a wider hive in one brood chamber would be more desirable from the standpoint of heavy production of package bees.

Generally, feeding increases the production of bees even when honey is in the fields and abundant pollen reserves are extremely necessary.

Dequeening of colonies in the fall flow to build up pollen reserves to give to other colonies is desirable and can be worked in conjunction with the usual procedure of requeening of colonies by the breeders during the fall season.

Supersedure.

Four men in the various departments have been working two years on the supersedure problem. Records have been kept of shipments from 15 breeders.

On a total of 770 packages on which the results have been tabulated there was shown a loss of 7.26 per cent of the queens in shipping, introduction and manipulation.

In addition, 8.99 per cent of the queens were superseded and another 3.3 per cent were replaced by the purchasers as being poor queens. This makes a total loss of queens of 20 per cent from various causes.

Dr. Whitcomb asserted that there was yet a lot to be done in queen rearing and queen shipping. He stated the selection of queens on the basis of their honey production qualities is not a desirable basis.

While a colony in a yard may be a high producer, it may be so for other reasons such as drifting, proper location, and manipulations which may be inadvertently done. A queen heading a high producing colony might not also be able to produce daughters which had the same quality. The daughters should be tested. This means that a breeder, in order to be properly tested, should have her daughters tested for a year and would mean the carrying over of breeding stock for two years before using.

Tests in Wyoming and the west also show one honey producer might secure a much larger crop than another with the same stock, queens being introduced with the same amount of brood and having the same number of bees when introduction was made.

There is a large difference also in the qualities of the brood which may be obtained from queens. On some of the tests made, only 55 per cent of the total eggs laid reached the pupa stage and 40 per cent died while developing.

Dr. Whitcomb particularly stressed the point that it was difficult to make a selection of qualities in the present queen yard, owing to the very nature of the high production and short season. He suggested that two variables combined in a queen were hard to measure and that the variation in queen rearing methods allowed of great range in final results. It is difficult to tell a poor queen from a good one when raised under proper conditions. He made mention of one of the best honey producing colonies in one of their northern test yards which was headed by what was assumed to be a "runt queen." Records are available on many hundred queens which were passed upon as to their quality before being shipped in the south and then similarly passed upon when received in the northern producing yards. Similarly, records were taken at the end of the season to see the checkup.

Dr. Whitcomb suggested that the production of bees for sale per colony could be doubled by proper procedure. Some of the requisites were ample pollen supplies, stimulative feeding and plenty of honey, the water necessary for brood rear-

(Please turn to page 583)

Indoor Wintering

By C. H. Pease,

Connecticut.

BEING an inside winterer, I naturally read the Diemer article in the October American Bee Journal first, but was somewhat disappointed to find that they had not described the details of their experiment as completely as they had previously done through other channels.

I am quite confident that what they did last winter in Missouri could not be successfully done in our latitude (the top of Connecticut) as they are about three degrees nearer the equator than we are and their winters are shorter and, doubtless milder; in fact, their bees were confined only three months whereas ours were in my cellar last winter 135 days (about four and a half months), and those last six weeks of confinement that the Diemer bees did not get are the trying ones in any form of wintering.

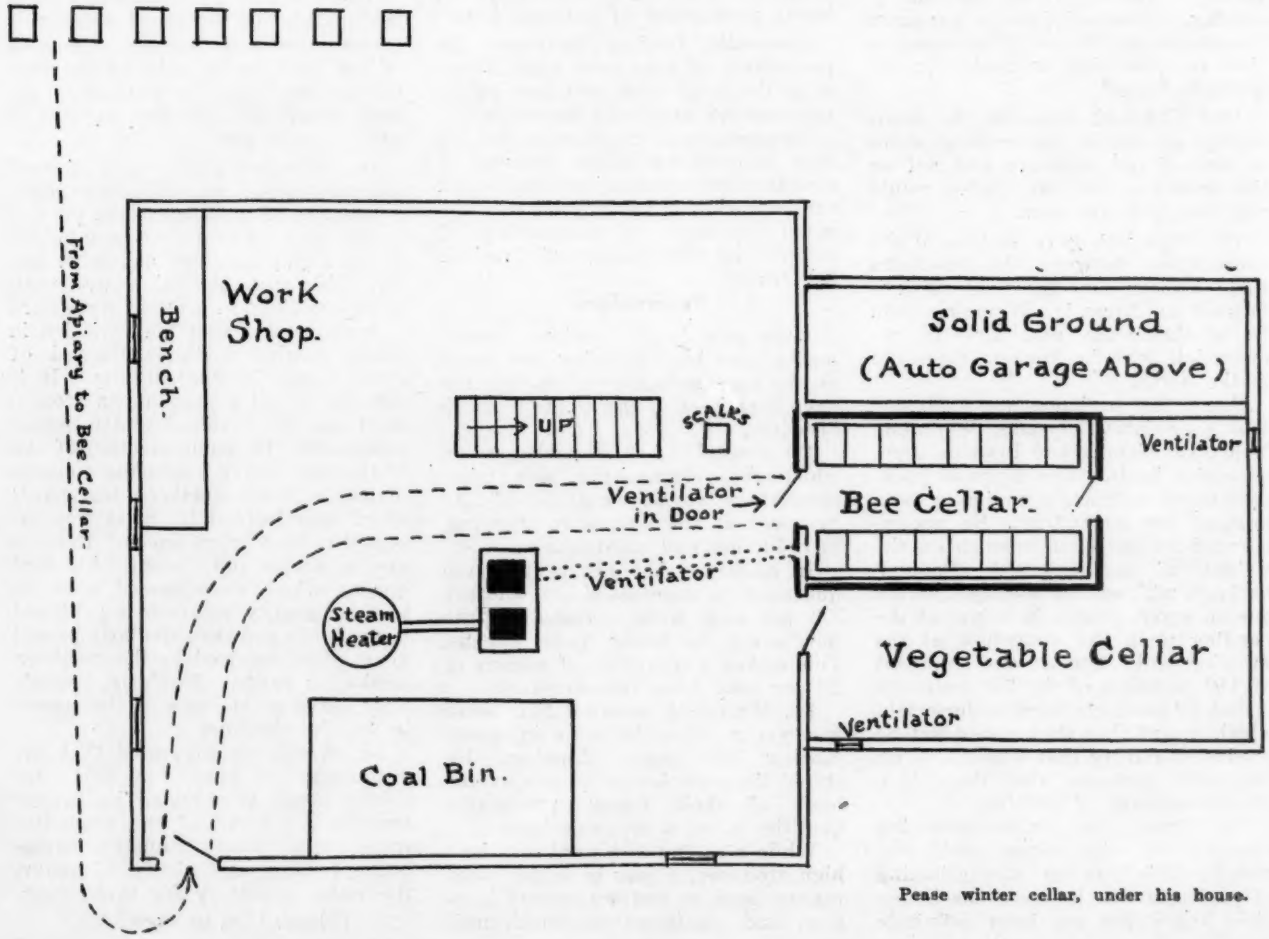
However, their experiment is interesting, and, although different from my inside wintering, it is one more step in the direction of proof that absolutely safe 100 per cent wintering of bees, regardless of the severity of the winter, can only be accomplished by taking the bees away from the weather, because the weather is beyond human control.

No outside winterer has ever been able to **know** in the fall how many colonies he will have alive in the spring—and he does not know now what he will have next spring. I know exactly how many I will have next spring, and have enjoyed this knowledge every season for the last fifteen years, as I have not lost one colony from wintering in this time.

I don't care what the winter is; no blizzards, ice storms, prolonged extreme cold, poor quality stores, mice, skunks, or any other outside hazard can touch my bees. And, besides, their winter food costs less than 45 cents per colony instead of several dollars' worth of my best clover honey, which, together with the positive knowledge that every colony is wintering perfectly instead of worrying myself about whether or not they are dying outside, is conducive to that "grand and glorious feeling" that helps to make life worth living.

The Diemers have started something that knocks out nearly all of the old-time wintering theories, and here's hoping they succeed because the outside idea of wintering bees is a costly bee killer and a gamble.

I was once called to account by a beekeeping authority for insisting that outside wintering is a gamble and full of "ifs." But is it not true



Pease winter cellar, under his house.

that perfect outside wintering is impossible "if" the weather man does not let the bees have at least two or three flights, "if" ice freezes the entrance shut and suffocates them, "if" the stores are not O. K. and plenty of them, "if" they are in an exposed, windy location, "if" they are not properly packed, "if" mice or skunks raise havoc with them? As to the gamble part, I will quote J. L. Byer, of Markham, Ontario, who wrote in Gleanings, November, 1920: "Surely, as I have often claimed, beekeeping is a gamble all right."

The Diemers and I agree and we disagree. We agree that inside wintering is the only sure and economical way of successfully bridging the gap between one honeyflow and the next, but we disagree on details such as the monthly exercise "spree" in a temperature of 80 degrees and also the fluctuation of 35 degrees in the bee room at other times. Mr. Diemer has worked his experiment only one winter of three months' confinement with no loss; I have worked mine fifteen winters of four and a half months, average confinement, with no loss. His bees were in a room on the first floor of his house; mine were in a room **under** the first floor. Although his bees came out alive and seemingly in good condition, I believe they would have had more vitality had they been kept quiet and in a more even temperature. I endeavor to see that conditions in my bee room are such that the bees will remain as quiet as possible throughout the whole winter.

That cage idea is a new one to me, but I am not sure that it is a bad one. However, I may make a few to try out this coming winter, and as the late Dr. Miller used to say, "take it to the bees" for approval. It has one good feature, anyway, it will keep the floor free from dead bees that are a part of all forms of wintering.

Perhaps if we inside winterers persist in hammering at it long enough, at least some of the outside winterers may become converted to the idea (some already have), but, as we have often heard, people believe what they want to, and reform comes slow and hard to those who have suffered winter losses so long that they like it.

Although we may not live to see it, we may gather encouragement from the following quotation from Emerson: "The measure of a master in his success in bringing all men 'round to his opinion twenty years later."

ABJ

Honey in Foods

From the Standpoint of the Federal Food and Drugs Act*

By W. S. Frisbie,

Chairman, Food Standards Committee.

THE present definition and standard for honey was announced in June, 1906, in the year in which the present Federal Food and Drugs Act was signed by President Theodore Roosevelt. This standard was the work of a committee known as The Standards Committee of the Association of Official Agricultural Chemists. This committee worked on food standards before the food law was passed. This and many other standards promulgated by that original committee are in effect today and most of them unchanged—a testimony to the care and thoroughness with which these chemists did their work. During all of these years there has been little if any criticism of the definition for honey. At the present time, there is no request before the Food Standards Committee for any modification or revision.

The fact that honey was included in one of the first schedules to be considered by this committee not only attests the importance of the product but reflects also the frequency with which it was adulterated, particularly strained honey. After the Act was passed, gross forms of adulteration of honey practically ceased. The records show, however, that it is necessary to exercise continued vigilance to guard against some forms of adulteration. Within the last five years, for example, many consignments of honey have been seized under the Act because they were short of weight declared on the label. The aggregate of these seizures amounts to several tons of honey. The Food and Drug Administration has also proceeded against shipments within this period of honey adulterated with sucrose, with commercial glucose and with commercial invert sugar. The last adulterant is of particular interest since this presents a tough problem for the chemists, for commercial invert sugar is not so easily nor so certainly detected as is the case with sugar sirup and glucose. The Department published in March of this year a Notice of Judgment (No. 26178) on an action brought in the case of a seizure of a consignment of honey alleged to be adulterated with commercial invert sugar. The claimant sought to contest this case and it was tried to a jury. The court, in the charge to the jury, took occasion to refer to the painstaking work of the Government chemists and referred to them by name, Mr. Lothrop of the Bureau of Chemistry and Soils, and Dr. Osborn of the Food and Drug Administration. In this sharply contested case the jury returned a verdict for the Government. The victory for the Food and Drug Administration is of no little importance to the honey industry.

We realize that you are interested not alone in honey but in other foods in which honey is or may be utilized. So far the Department of Agriculture has not established any standards for such products, and it would perhaps be appropriate to explain the chief reason for this fact. The present Food Standards Committee consists of representatives of the Association of Official Agricultural Chemists, the Association of Dairy, Food and Drug Officials, and the Department of Agriculture, and was established in 1913. The principles which have governed this Committee for these twenty-four years prescribe the formulation of definitions which shall reflect consumer understanding and ethical trade practices. Since no specific authority has been granted by Congress under this Act to establish standards having the force and effect of law, it is obviously necessary that those definitions which are adopted by the secretary shall be ones the validity of which can reasonably well be established, in the event of litigation, by suitable testimony showing consumer understanding and good manufacturing practices.

*Presented before International Beekeepers' Congress, Institute Day, October 27, 1937, Washington, D. C.—Editor.

Consumer understanding of products in which honey may be used as a flavor or a supplementary sweetening agent is not so well established, nor is there such uniformity in manufacturing practices as to warrant the Committee in undertaking to announce for purposes of law enforcement definitions and standards for this class of product. Under its present set-up, the Committee must avoid the announcement of any definition or standard which can be criticized as being arbitrary or capricious. The Food and Drug Administration has received many inquiries regarding the use of honey in food products and to all has consistently replied that in the absence of any definition or standard to guide it, every food article to be qualified as a honey product, or even honey-flavored, must contain a sufficient amount of honey to definitely characterize it over a similar product in which honey is not an ingredient. It becomes a rather difficult matter both to the regulatory official and to the manufacturer, since we have but to realize the many varieties of honey on the market from the delicate flavored Orange Blossom or White Clover to the strong flavored honey such as Buckwheat honey. Obviously, decision must be reached in individual cases.

A misunderstanding in some quarters has arisen regarding the use of honey in jams and jellies, word having gone out that the standard recognizes sugar and not honey and, therefore, the use of honey constitutes an adulteration. This is true only technically, in the same fashion as the use of gold in our copper coinage would be deemed an adulteration, since it results in a departure from a definite standard. In other words, an adulteration technically may occur by the substitution of a more valuable ingredient as well as one of less intrinsic worth. The Administration, in its correspondence, has sought to assure those inquirers that the use of honey in jams and jellies is by no means barred but simply that an appropriate labeling is called for, and, incidentally, it would seem to be the desire of the manufacturer of such product to call attention to the fact that honey instead of sugar is the sweetening agent. All that is required under the Act is that the labeling shall be free from any misleading statement, design or device.

Those of you who attended the convention at San Antonio last year learned of the investigation by this Administration of the famous Cuban honey which made its appearance in this country some five or six years ago. It was originally labeled as nature's cure for throat, stomach, bowel and other ills. Its marvelous properties were more specifically set forth in a leaflet in which it was offered as a cure for snake bites, the stings of poisonous insects and recommended for ulcers of the throat, mouth and alimentary canal, even for the relief of asthma. Since the analysis in our laboratory disclosed the fact that it was an ordinary honey, prosecution was recommended but before the case came to trial the defendant died. One seizure, however, was effected in 1934. Since then the product has been offered for sale, so far as we can find, with no false or fraudulent therapeutic claims on the label. The same, or similar claims, still are made for the product, but they are in the form of collateral advertising over which the Food and Drugs Act has no jurisdiction.

Attempts have also been made, as you probably know, to incorporate this honey in bread and the bread labeled with extravagant therapeutic claims. Apparently this enterprise more or less failed since we have been unable to find consignments of such bread for seizure under the Act.

Although the labels for this honey collected in 1937 contain no therapeutic claims, it is interesting to note that the consumer is directed to take 1 or 2 teaspoonfuls before each meal and before retiring, diluted with milk if necessary. The strategy of recommending its consumption in such regular dosage is apparent when we learn that the purchaser pays over a dollar a pound for this delicacy!

For the past four years, as you know, Congress has undertaken the task of amending the Food and Drugs Act so as to afford more complete protection to the consumer and to the industry as well to an extent not now possible in an Act which has been in effect for thirty years. In all of the Bills so far considered, there is a provision for the establishment of legal food standards by the Secretary of Agriculture. Such a provision would obviously result in extending the list of standards for foods which would be equitable alike to the consumer and to the legitimate manufacturer.

Although most of this audience will probably not recall from personal experience, you all at least have heard of the interest of the honey producers in the enactment of Federal food laws. Your industry voted determinedly and consistently for the passage of the Act in 1906. You have again demonstrated your interest in Bills to amend this law which have been before Congress during the past four years. The Food and Drug Administration not only acknowledges the part you have played and continue to play in the enactment of a law which will afford the maximum of protection to the consumer but pledges, through its Chief, Mr. Campbell, to continue to maintain the integrity of your product just so far as machinery and available funds will permit. You rightly take a justifiable pride in the product which you offer to the public and one to which the Books of the Old Testament pay tribute, perhaps best described in the words of Maeterlinck: "Were someone from another world to descend and ask of the earth the most perfect creation of the logic of life, we would needs have to offer the humble comb of honey."

———ABJ———

Avoid Wet Apiaries

Much has been written about choosing an apiary site, but here is one more point that a Virginia beekeeper has discovered. He had several outyards, as most extensive beekeepers have, and also rented bees to orchard men. Going out one morning to get a load of bees for an orchard, he found that what appeared to be a fairly firm field was too soft to drive over and he had to carry each hive a quarter of a mile to the truck. Now he picks his location in April instead of August, or at least checks up on what they will be like in April. Walter H. Hull,
Virginia.

———ABJ———

A New Bulletin

"The Influence of Size of Brood Cell Upon the Size and Variability of the Honeybee," is the title of a new technical bulletin recently issued by the Iowa Agricultural Experiment Station, Ames, Iowa. The bulletin is Research Bulletin 218 and Roy A. Grout is the author.

An article in this magazine in the April 1936 issue gives a digest of the results covered in the bulletin. The data presented show conclusively that size of brood cell is a factor in determining the size of the adult worker bee and that significantly larger bees are obtained through the use of artificial foundation having enlarged cell bases.

Copies of the bulletin can be had by addressing the Iowa Experiment Station at Ames.

———ABJ———

Long-Winded Speakers

One thing that tends to kill interest in beekeepers' meetings is the long-winded speaker. It seems that some are able to do a lot of talking without saying much. Any speaker who can not say his say in 20 or 30 minutes is seldom worth listening to. If a definite time limit were insisted upon by the chairman and more time allowed for discussion, our meetings could be made much more interesting.
E. S. Miller.

The Roadside Sign

By Mrs. Benj. Nielsen,

Nebraska.

A stand and sign, small but often enough.

OUR place is located on the edge of town where two highways unite. Such a location has a multitude of signs, so a good sign is absolutely important. Mr. Nielson made the block letter sign, the faces of which are painted black, the sides yellow and the sign mounted on a gleaming white background. This is suspended from an arm at right angles to a four by four standard. Both arm and standard are painted alternating black and yellow.

We have made trips through different states to see and compare honey stands. Some stands, though spacious, were dirty and weather beaten, and so arouse little interest. There is certainly no desire to possess anything coming from them. Others though small and well-kept were so cluttered that they did not engage the attention quickly.

We desired a place that would compel attention, arouse interest and create desire. The mating hives have taken care of the first two requirements. The honey speaks for itself. We keep just a few containers of honey on the stand. It is only a short distance to the house where there is an ample supply. People like to see what they are buying and so although most of our sales are in tins, we use the glass containers for display purposes.

Simply displayed in the sunlight, the honey speaks for itself. It reminds one of imprisoned sunshine. "I just had to stop; it looked so good!" is a frequent exclamation.

The color scheme adopted years ago is yellow, black and white. The sign is wired for electricity and so proclaims its message at night too.

The queen mating boxes are unusual and have aroused interest and curiosity. They are wonderful advertisers.

The sign shown on the tree is very like those often used by beekeepers. It easily goes unnoticed. The other sign which may be read for a quarter of a mile sells tons of honey every year.

To keep a neat sign, well painted, requires little effort and expense and brings in steady honey sales. The sign should have a good background, should have both contrasting lettering and few words and, of course, "Honey" should be the outstanding word. Do not have your sign too near others, for competition is not good. It should be seen for a little distance on either side.

It is well to have a price sign. Many people hesitate about stopping to ask about the price.

Invest in a good sign, take care of it and it will go a long way toward disposing of much of your crop.

A makeshift and neglected sign.

A sign like this, described in the article, is a profitable investment.

Important Changes In The Immediate Future

By M. G. Dadant,

Illinois.

A MAN asked me the other day what I thought were the most important changes in the immediate future of American beekeeping. I told him that, in my mind, we were to make the greatest strides in bee breeding and honey plant development, and that the future would see great advances in these two subjects.

Much of our early information and literature on bees came from the time that the American Bee Journal was founded in 1861, and many articles appeared in its pages translated from the German. The Germans were more advanced in beekeeping at that date than other parts of the European continent, except Italy. The Germans had made importation of Italian queens and found the race so much better than their native blacks, that their bee journals were full of the subject.

Samuel Wagner, the first editor of the American Bee Journal, attempted importations of Italians into America in 1855, but he was unsuccessful.

I find reported in the first National Beekeepers Convention which was held in Cleveland, Ohio, in March, 1860, a report of apparently the first successful importation of Italian bees and queens, made the year before, or in 1859 by Langstroth, Wagner and Mahan. This was followed next year by importations by Parsons, the Patent Office, and from then on importations became numerous. Adam Grimm, of Wisconsin, in 1867 went to Italy and came back with some 100 colonies of Italian bees. He later advertised these queens at $20.00 each.

My grandfather, Charles Dadant, made two trips to Italy. On the first in 1872, he arranged for importations, which were later very successful. The Dadants not only sold the imported stock at prices ranging from $10.00 to $20.00, but also reared queens themselves from these imported mothers which sold at prices ranging from $3.00 to $10.00. I have many times heard my father say that he would rather spend his time in jail than raise queens for sale. The woods were full of black bees, many of the buyers of the queens were novices, with mostly black bees themselves, and with little knowledge of the difficulties of introduction, and the possibilities of supersedure. Maybe father took the complaints too seriously, but I imagine that all earlier breeders have felt the same at times after weeks of hard work to get a complaint which seemed without foundation, or to be classed as a criminal, even though unbeknownst even to themselves mismating might have occurred.

And yet, these were great days, these early days of the introduction of the Italian race into America. I fancy the early breeders did not have the strain put on them to keep up with the Joneses. They were deeply interested in getting pure matings in expanding the onward sway of modern beekeeping as we know it today, for just about the time that the Italian bee came in, there came also from Europe, the honey extractor and bee comb foundation, and our beloved L. L. Langstroth had come out with his epoch making comb hive, which was to make all these other innovations ten times as valuable as they would have been in the box hive period.

So, I say, we have a great deal to credit to these pioneers in American beekeeping.

Readers are all familiar with the Benton mailing cage which is used almost entirely in mailing queen bees throughout the world. Perhaps, however, many do not remember Frank Benton, the inventor of the cage. Mr. Benton was in charge of the Bee Culture Laboratory in Washington, D. C., from 1891 to 1907.

Mr. Benton traveled extensively in Europe previous to taking his position with the department, and made several trips to Europe and Asia during his office term. The government sent him there to investigate the different races of bees, Italians, Caucasians, Cyprians, Carniolans, as well as the giant bee of India, and other races.

To my mind Mr. Benton was a generation ahead of his time. He had the idea that with such a country as the United States, with all the varied climate and temperatures from Cuba to Arctic, separate races of bees should be secured which had more nearly the natural requisites through survival in their native countries. For instance, Caucasians from mountainous Russia for our mountain sections, Carniolans, perhaps for the foothills, Egyptians for the warmer sections, and the Italians, perhaps for between.

But American beekeeping was not yet ready for such a selective process. In the first place the darker races were harder to distinguish from the native blacks, and the hybrids, especially, were indistinguishable. The Italian race lent itself more to this program of improvement.

In the second place, many of the outlying regions were not yet open to beekeeping so the territory was restricted. Furthermore, beekeeping was on the increase, and what was needed was an all purpose bee which could be bred in quantities and at a price which would allow volume sales.

The southern breeder has been criticized for not breeding better bees, for not spending more time in scientific breeding. Blame has been put on him, that in the present day hubbub of volume production, quality has been neglected, that many of our complaints of supersedure, bad wintering, and even disease are the final results of too little attention to the fine points of bee breeding. Part of this may be true.

But personally, I want to compliment the southern breeder rather than criticize him. The southern breeders have certainly done a fine piece of work in being able to expand their production to take care of the enormous demands put upon them by the northern producers. The eternal cry has been for cheaper bees to cut production costs, and prices of queen bees went down even as low as 25 cents each. When prices get even with or below the cost of production, there are only two things to do. Either go out of business or cut corners to bring down costs so as to allow a margin of profit.

Well, the breeders did not go out of business, and in cutting costs, it is undoubtedly the case that insufficient attention to breeding problems has resulted. That is a natural consequence. Most any breeder would be more than willing to hire a geneticist, and a special assistant to handle his breeding problems if he knew that he could get two or three or five dollars for his queens to recompense him for his investment. But I do not

believe, in the past thirty years at least, any breeder could ever have survived who followed this policy, even though his queens might have been ever so good. We have been in an era of volume expansion, big production. The southern breeder has stood up to the volume demands far better than anyone could have anticipated.

But now, I wonder, if we are not rapidly approaching another cycle? Isn't it perhaps true that within the next ten or twenty years we may look for a tapering off in the rapid expansion in bees? Already we hear beekeepers in many of the better regions complaining that the territory is becoming overcrowded. Sugar beets are cutting in on alfalfa and sweet clover in the irrigated valleys. Changing plans in rotation of crops in many other sections may leave large acreage out of the picture. Our basswood groves are becoming smaller. Soy beans are entering the farm picture.

I should like to give you for what it is worth, the following observation which I have made in traveling over the country during the past year. More and more I hear large beekeepers say that they are disappointed with the bees they are getting, that they do not measure up to the quality which they want in their apiaries. The usual threat on part of such a beekeeper is that he will go south and raise his own stock, and quite a number have already done this. I think more are doing it each year. Perhaps they find it cheaper to live and more pleasant in the south during the cold winters, and want to occupy themselves while there, thus raising their own supply of bees. No doubt that is the determining factor with some.

But others are conscientious in their belief that they can make better selections, raise better bees with more of the characteristics suited to their particular environment, than they can get through the present agencies. Two large producers, one with 1700 colonies and another with 1400 so expressed themselves to me within the last month. One of them is definitely locating a yard in the south. He may give it up as a bad job after he has confronted the difficulties, but at least it shows how the producers are thinking.

Please do not consider these statements a reflection on the whole southern bee breeding fraternity. There are thousands of satisfied customers, to the few that are complaining, but it does show a tendency that must be confronted or it may grow to proportions that will sooner or later jeopardize this great southern industry of breeding and shipping bees and queens.

I feel sure that most every breeder is proud of the strain of bees he produces, that there is a continual effort for betterment of stock. But several things militate against success in the efforts. In the first place there is no guarantee of isolation. The very fact that you must be near proper shipping points requires that operating yards be located in sections where isolation is difficult. In addition, in the strenuous work of a heavy shipping season, there is not the possibility of perpetuating those qualities in breeding stock which you and your customers consider most valuable. I am sure that many, if not all breeders, are confronted with a possible loss of their breeding foundation stock, too often to be pleasing to them. Too often buyers of bees complain that a good breeder last year has queens this year that do not measure up.

No doubt, also, many breeders have built up a strain of bees which they swear by and which have built them a reputation. But man is mortal. When a breeder's active years pass, is there and guarantee or any hope that the strain on which he has spent his lifetime will be carried on and perpetuated to the betterment of beekeeping? Regardless of how anxious we all are for success during our lives, we do feel a certain pride in having our work recognized and carried on after we are gone.

And that is one thing which has been lacking in the past. Pratt, Doolittle, Moore, Alley, Davis, all had built up strains of bees which must have had merit or they would not have been so popular, years after these noted men had passed on. And yet, where are these strains now? They have largely disappeared as strains in themselves, even though we may have their effect in many of the bees of today.

Our businesses do not have the perpetuity of those of the European countries where a single family stays wholeheartedly in one occupation for generation after generation. Nor do we have the isolation that is needed for such narrow breeding as would be necessary.

That is largely the reason why, if we want foundation stock, we still go to the old countries for it. For the isolation and careful small scale breeding that we cannot hope to approach from the very nature of our position.

Personally I feel that if we are ever to accomplish what we should in breeding, we shall have to have breeding stations in this country that will specialize in long term breeding, carried on without being impaired by the necessity to get volume and paying production.

Will any private breeder ever be able to devote himself to such painstaking breeding? I doubt it. He cannot afford to do so. And if he does is there any assurance that the breed he builds up can be maintained after he passes out of the picture?

More and more, I believe, that before we can accomplish what should be done along these lines, we will have to entrust the problem to agencies which are best suited to carrying out such projects. And by that I mean the U. S. Department through its Bee Culture Laboratory, working in affiliation with the State Experiment Stations and private individuals in setting up breeding stations where such problems can be investigated and carried out over a long period.

That is one reason why I am so much interested in the experiments which are now being conducted on disease resistance in bees. They represent the first cooperative effort for breed improvement. Such work can be carried on over a long period, I feel sure, with wonderful results. There is no doubt that the experiment so far definitely proves that you can get disease resistance in bees. But the question still remains as to whether after you have gotten it, partially or wholly, you have accomplished much unless yon can at the same time preserve in this resistant strain, other qualities such as gentleness, honey production, etc., on which many of our present bees have built their reputation.

Very probably other breeding stations can be established where similar work can be done on tongue length, honey sac capacity, gentleness, honey gathering ability, wintering, etc., and perhaps other super stations where all these qualities can be assembled into one super bee, from which we can get our foundation stock. Or we will have many established strains, well recognized; one a bee selected for the conditions of the Rocky mountains, another for the slopes of the Atlantic Coast, another for the wind-swept prairies of the Dakotas and Minnesota.

The possibilities are unlimited. We have chicken breeds selected for egg production, others for show, others for meat production; cattle for milk or meat, horses for toil, for light work and for show and for racing—why not honeybees similarly selected?

And this will not take a thing out of the hands of the southern bee breeder. He can make his selection of the type he wishes to breed, and then add to it all his skill, all his efforts into producing a bee which he can well advertise as superior on account of the painstaking effort he has put upon it, and any slip-up in his foundation stock can at least be partially made up through new additional stock from his favorite breeding station.

Bee breeding has not been neglected, it has been sacrificed to the everyday needs of present high speed production. I think it is high time we recognize this as a problem, difficult but possible of solution. We should strive for it.

Specialties

THE great field of honey specialties here is still wide open and begging for sod busters. The English point a way with this Romary bake, distinctly a specialty. We reproduce the ad here, sent to us by a subscriber. Read the caption and see how quickly you too wish that you might taste the goodness in these pretty tins.

Honey candies are on our market; some of them excellent, some poor. But the bakery field still puts honey to a gross use, not because it is honey but because the average baker slows his returns with it. The honey keeps the goods moist over a longer period. There are still to be found bakers who will dare to sell a fine number just because it is made with honey, that sweet of all sweets, that comes untouched from the bosom of earth.

All of us retain a liking for romance in food. Else why do we delight in spending for delicacies when we are away from home and "no one will really know it?" Why should this pleasure in food not be a part of the light that makes our daily life more precious?

—ABJ—

Use Old Packing Paper for Grass Cover

Pieces of old linoleum or tar paper; some that has been used for winter packing, and is now useless for that purpose, laid in front of the entrance to the hive will prevent grass and weeds growing that hinder the flight of the bees. Frank Johnson.

Top Entrances For Wintering

By Eldon Martin,
Missouri.

AS one looks back over past beekeeping mistakes he finds interesting facts. The contraction fad was based on theory and resulted in poor honey crops. There have been other mistakes. Top entrances have not been generally accepted because of the fad of conserving heat and because of flight confusion when entrances are changed, and the idea that dead bees must be carried to the top, all of them of little value.

The bottom entrance never did give satisfactory results. It is not in harmony with the natural condition of bees. In the northern states where the bees have few flights through the winter, the entrance is a ventilator. Do you ventilate your house in winter from under the door or from a lowered window at the top?

The bottom entrance has outlived its usefulness as a winter entrance. The top entrance will not take the place of young bees, a good wind break, plenty of packing and good stores, but it is far superior to the bottom entrance. In my opinion it removes excess moisture, gives a more uniform temperature, keeps the bees down in the hive, keeps out marauders and prevents clogged entrances.

One of our universal mistakes is trying to conserve heat by cutting the entrance down to a small opening instead of using plenty of packing on sides, top and bottom. I saw a yard of twenty colonies wiped out north of Auburn, New York during the severe winter of 1935-36, that probably would have wintered fair had they been left on their summer stands instead of giving them scanty packing and reduced entrances. This same beekeeper bought two colonies the following spring a quarter of a mile away that were left as they were in the fall and came through in good shape.

Thousands of colonies die each winter because of the entrance and yet this is the easiest to control.

—ABJ—

Improved Apparatus For Inseminating Queen Bees By The Watson Method

This is the title of an article by W. J. Nolan of the Bee Culture Office at Washington and published in the "Journal of Economic Entomology" for October. It describes the improvements in the Watson technique which would be of interest to breeders and investigators.

Mrs. Wixom Active Worker

Mrs. Eva Wixom, Wapato, Washington, known as the "honey queen" of the Yakima Valley, called attention to the Honey Harvest Festival by sharing her favorite recipes for honey with her buying public.

Mrs. Wixom keeps 500 colonies of bees and harvests from 10 to 15 tons of honey every year, handling the sales end of her business entirely herself. Her crop this year will be about ten tons. She likes to experiment with honey cookery and has evolved distinctive recipes for honey apple pie, pumpkin pie, syrups, cookies, etc.

I. L. Neill,
Washington.

———ABJ———

Enemies

"Mice are very hurtfull . . . to Bees but not at all times alike. In summer when the hives are full, and the Bees lusty and keep a constant guard and watch, they seldome meddle with them; but in Winter where they are . . . shut into the hives, almost bereaved of their lives, then doe they without feare or hazzard rob and plundder them. And Satan our constant adversary takes advantage of professors: When they keep a continuall watch and course in prayer they do not so oft miscarrie, but in the night of their ignorance, in the sleep of their peace and securitie, when they can least espie him doth he take advantage and by his wily, unseene strategems overthrow many."—From the writing of Samuel Purchas.

W. H. Hull,
Virginia.

———ABJ———

Suggestions About Package Bees

(Continued from page 575)

ing being furnished by the syrup fed.

It would also be necessary to develop queens which would breed early in the spring and build rapidly. More and more the southern queen breeder is being called upon to furnish larger and larger quantities earlier in the season so that volume production per colony is desirable. He stressed to the breeders at the meeting particularly that volume production per colony should be aimed at rather than the securing of a larger number of colonies to get the same volume.

His recommendation was against the breeders advertising heavily the shipment of packages after June 1. In his mind the packages shipped after June 1 are a gamble as to whether or not they will prove productive to the northern buyer.

Livingston and Wyoming County Association.

The Livingston and Wyoming County (New York) Beekeepers Association met at the home of Fred G. Benedict, Friday, September 17. The attendance was small, as the day was cool and many beekeepers were busy at other work. Professor Rae, of Cornell University, was the speaker; during the forenoon he was kept busy answering questions.

In the afternoon A. C. Gould, state bee inspector, dropped in on his way through our part of the state. the meeting turned into a round table talk, with Mr. Gould and Professor Rae leading the discussion.

After the meeting, Professor Rae demonstrated packing bees for winter.

At this meeting the following officers were elected for 1938: Owen Brewer, Jr., Warsaw, president; Everett Clark, Warsaw, vice-president; Fred G. Benedict, Perry, secretary.

Fred G. Benedict, Secretary.

—o—

Seneca County Beekeepers Meet.

Members of the Seneca County (Ohio) Beekeepers Association were entertained by Mr. and Mrs. Nicholas Huth, at their home west of Tiffin, Saturday, September 25. After a delicious potluck dinner a business meeting was held, with Earl Buton presiding. Reports were given by William Cross and John Buchman on the recent meetings held in Sylvania and Medina.

The honey crop here is very short. What little honey there is was gathered from smartweed, goldenrod, late alsike, and buckwheat. Considerable feeding will be necessary to get the bees in shape for winter.

John F. Buchman.

—o—

Report of Southern Beekeeping States Federation Meeting at Washington, D. C., October, 25-26-27.

Monday morning, October 25, a business session of the Southern Beekeeping States Federation was held in the Hall of Nations, Washington Hotel. The meeting was called to order by President E. S. Prevost. The minutes of the 1936 meeting were read and adopted. All committees were appointed and the following cities extended invitation for the next meeting: Charleston, S. C., Tampa, Fla., and New Orleans, La.

Tuesday morning, October 26, the meeting was called to order by the president, who gave an address on "The Value of the Southern Beekeeping Conference." Mr. Geo. W. Bohne gave a talk on "Analyzing this Business of Ours." Dr. Eugene C. Auchter gave a talk on "The Importance of Pollination in Fruit Yields," As Dr. E. J. Dyce and W. G. Lemaistre, of Canada, could not attend, they were represented by Mr. E. C. Martin, of O. A. C. College, who made a very interesting talk. The following officers were elected for 1938.

President L. M. Dewey, Merritt Island, Fla.; Vice-President, M. S. Fortune, Mayhew, Miss.; Secretary, A. V. Dowling, Valdosta, Ga.

Legislative Committee: G. G. Puett, Ga.; J. M. Robinson, Ala.; T. W. Burleson, Texas; J. W. Newton, La.; L. C. Jensen, Miss.;

Resolutions Committee: R. E. Foster, Fla.; Thos. Atchison, Ala.; G. W. Bohne, La.

Program Committee: Ned Prevost, S. C.; A. C. Lundin, Fla; A. D. Hiett, Va.

Executive Committee: G. W. Bohne, La.; Roy Weaver, Texas; J. W. Rice, Okla.; Leslie Wedgeworth, Ariz.; Homer W. Richards, Ark.; Jasper Knight, Ala.; L. C. Jensen, Miss.; L. M. Lewis, Fla.; E. H. Ezell, S. C.; P. G. Craddock, N. C.; H. W. Weatherford, Va.; G. M. Bently, Tenn.; J G. Rossman, Ga.

Nominating Committee: G. G. Puett, Ga.; A. D. Hiett, Va.; L. M. Lewis, Fla.

Charleston, S. C., was selected for the meeting to be held next fall, the exact date to be announced later. A special invitation to attend is extended to Canadian and northern beekeepers, the Apiary Inspectors of America and the American Honey Institute. There are many historical sights near Charleston and the weather should be pleasant. Mr. Prevost has promised a short boat trip, so make your plans to be with us next year.

A. V. Dowling, Sec.

—o—

Empire State Honey Producers' Association.

The annual convention of the Empire State Honey Producers' Association will be held at the Ten Eyck Hotel at Albany, New York, Friday and Saturday, December 3 and 4, 1937.

An excellent program has been arranged, including such prominent speakers as Jas. I. Hambleton, of Washington, D. C.; H. H. Root, of Medina, Ohio; E. F. Phillips, of Ithaca, N. Y.; George H. Rea, of Ithaca, N. Y.; and others.

All beekeepers are invited to attend. These annual get-togethers are

for the benefit of all beekeepers who wish to keep informed of new developments in our industry, and everyone who wishes to keep up-to-date in his field should attend.

E. T. Cary,
Secretary-Treasurer.

—o—

Conditions In the West.

Idaho beekeepers report colonies below normal with poor stores, wintering probability not certain. Utah reports ideal fall weather with late brood rearing; although colonies are generally light in stores, they will go into winter quarters better than a year ago. The prospects for the coming season are excellent.

Wyoming bees went into winter in good condition although some feeding was done because the flow stopped early. Plants look favorable for next year. The 1937 honey is extra heavy. Nevada bees are going into winter quarters with plenty of stores although they may need early spring feeding. The crop was short in most sections and the production of comb honey is the smallest for many seasons. Glen Perrins,
Utah.

—o—

Benton to "Bees and Honey."

Mrs. Grace H. York, owner and manager of "Bees and Honey," announces in the November issue of her magazine the appointment of a new editor—Ralph Benton.

American beekeepers have long been familiar with the name of Benton. The family background is beekeeping. Frank Benton during his lifetime wrote widely in beekeeping magazines and was at one time Chief of the United States Department of Agriculture, Beekeeping Division. Ralph Benton, his son, has for many years been keeping bees in California and has made a reputation in honey production, queen-rearing, and experimental work.

—o—

An Aspect of the Moisture Problem.

Recently I read a circular from the Forest Products Laboratory on the moisture problem in insulated houses. It mentioned the use of different creosoted papers and aluminum paint in preventing passage of moisture. The better the insulation, the greater the moisture problem.

This is also true in hive construction. Dr. C. C. Miller, who cellar wintered his bees, left his hives unpainted so that moisture would pass through the walls. I have seen large water blisters under the paint on hives of cellar wintered colonies.

A friend had about 150 colonies in double walled protection hives during the severe winter of 1935-36. The hives were insulated with 2 inches of planer shavings, creosoted on the outside and covered with aluminum paint. They were very warm hives and well protected from outside moisture. The bees had the added protection of snowbanks, but they wintered very poorly. The cause was inside moisture.

It has long been known that bees in protection hives winter well with trays of chaff or leaves. So I suggested to this friend that he cover his frames with sacks of leaves last winter. His bees kept dry and wintered nearly 100 per cent. Another beekeeper packing single walled hives, mostly unpainted, in leaves, wintered good in 1935-36, with sealed covers.

With the use of protection hives and the increased use of aluminum paint, we must consider the moisture problem. Anyone troubled with moisture should try some form of moisture escape at the top without a draft, as absorbent cushions or top entrances. Ivan Whiting,
Illinois.

—o—

Canadian Honey to Great Britain.

A clipping from "Country Life in British Columbia" sent by S. P. Hodgson reports that Canada was the largest individual shipper of honey among 45 counties which contributed 8,829,296 lbs. of honey to the British market in 1936. The Canadian shipments were 2,295,328 lbs. for that year, 560,00 lbs. more than in 1935. In 1925 the Canadian exports to the United Kingdom were 4.1 per cent of the total British honey imports; now about 27 per cent.

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Michigan Annual Meeting, February 2-3.

The annual meeting of the Michigan Beekeepers Association will be held at Michigan State College, on February 2 and 3 during Farmers' Week.

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Michigan District Meeting.

The following district meetings of the Michigan Association will be held during December—December 8 at Detroit, 9 at Saginaw, 10 at Grand Rapids. For details, write R. H. Kelty, E. Lansing, Michigan.

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Yakima Cooperative Marketing.

The Yakima Association is calling a special meeting to consider the cooperative marketing of honey. H. B. Young, district manager of the Washington Cooperative Egg and Poultry Association, will present the problems of cooperative marketing. The Yakima Association had displays of honey and honey products in Yakima, Toppenish and Wapato during the Honey Harvest Festival Week. I. L. Neill,
Washington.

Yakima Gets Association Meeting.

Yakima, Washington will entertain the Washington Beekeepers' Association for the annual convention December 7 and 8.

I. L. Neill,
Washington.

—o—

University of Illinois Broadcast On Bees and Beekeeping.

Starting Friday, December 3 at 3:00 P. M., the University of Illinois over its station WILL will inaugurate an extended series of weekly 12 minute talks on the subject of Bees and Beekeeping in Illinois. Professor V. G. Milum, Apiculturist of the Department of Entomology will explain the behavior of the bee colony followed by discussions of the fundamentals and principles of beekeeping practices as the series progress. Station WILL operates on a frequency of 580 kilocycles.

—o—

Idaho Association Annual Meeting.

Members of the Idaho State Honey Producers Association held their meeting November 12 and 13, at Twin Falls, Idaho. Twin Falls is in south central Idaho, and honey producers were in attendance from the far eastern and far western parts of the state, some coming 175 to 200 miles to attend.

Dr. A. P. Sturtevant, of the Intermountain States Bee Culture Field Laboratory at Laramie, was the principal speaker. He told of the work done in determining the importance of pollen to the wintering and the spring build-up period of a colony of bees. The bees start brood rearing in February and, he says, because of the supply of pollen, they continue brood rearing irrespective of outside temperature or lack of flowers. The colonies with plenty of pollen and honey are the ones that come through strong in bees. They are the ones which build for the honeyflow. A colony strong in the fall, with plenty of honey, but short of pollen is quite likely to come through the winter in a weakened condition. The old bees in the hive die more quickly than the young bees can mature and, as the colony must wait for spring pollen to begin to build, it does not become strong until late in the seaon. Dr. Sturtevant estimates that four or five frames of pollen are required to bring about strong colonies in the early spring. At a rough estimate, a frame of honey is necessary to make a frame of brood and a pound of pollen to make a pound of bees.

Dr. Sturtevant has been working, also, in the development of a strain of bees resistant to A. F. B. and he says the results are encouraging, but that it will take time to fix the resistant quality.

The two-queen hive has given good results. At Laramie the work has

been done by putting a queen excluder over the body containing the old queen, and above this two extracting supers with dry combs. Over this is placed a wire screen and then a super with brood, ripe queen cell, or virgin. After the virgin has mated and is laying, the screen is removed and a super of dry combs is placed on top for the honeyflow. The two-queen hive gave a greater amount of honey than two hives, each with a queen. A disadvantage was the handling of the high stack of supers. After the honeyflow the old queen could be killed and the brood united.

Dr. Sturtevant has a successful method of introducing package bees. When the package is received, the bees are sprayed with a thin sugar syrup. The screen in the end or side of the package is cut out and the bees are dumped into the hive. The sprayed bees do not fly and are interested in cleaning themselves up. The queen is sprayed and dumped in among the bees. All are given a spraying and the hive is closed. The introductions by this method have been found to be about 100 per cent safe.

Irwin Powers, of Parma, Idaho, one of Idaho's largest honey producers presented the results of his discovery of a parasitic fly which lays its eggs in the body of the wax moth larva. Mr. Powers showed two combs that were infested with lesser wax worm and a pint Mason jar containing combs, webs, and larvae of the lesser wax moth, together with the parasitic fly in different stages of maturity. The fly looks to be about ⅛ of an inch long, of a mauve or grayish color.

The egg laid in the body of the larva hatches and lives there. The larva grows to about full size and then dies. Little swellings on the skin of the larva indicate the point of exit of the parasite. From one to a dozen appear to emerge from the body of a single worm. The parasitic larva spins a cocoon on the comb and later emerges as a full grown fly, ready for another round after mating. The cocoons are small cotton-like particles. When Mr. Powers built a new warehouse, he found the combs stored in it were infested with wax worms, while in the old warehouse the combs were practically free from worms.

The fly appears to prey equally on both the lesser and greater wax moth larvae. Specimens in all stages of development are being sent to Dr. Hambleton at the Bee Culture Laboratory in Washington for identification.

The officers of the Idaho State Honey Producers Assn. for the coming year are: President J. J. Lockie, Shoshone; vice-president Earl Miller, Blackfoot; secretary-treasurer, Doug-

(Please turn to page 587)

The BEEKEEPER'S EXCHANGE

Copy for this department must reach us not later than the fifteenth of each month preceding date of issue. If intended for classified department, it should be so stated when advertisement is sent.

Rates of advertising in this classified department are seven cents per word, including name and address. Minimum ad, ten words.

As a measure of precaution to our readers, we require references of all new advertisers. To save time, please send the name of your bank and other references with your copy.

Advertisers offering used equipment or bees on combs must guarantee them free from disease, or state exact condition, or furnish certificate of inspection from authorized inspector. Conditions should be stated to insure that buyer is fully informed.

BEES AND QUEENS

BOOK YOUR ORDER now and get those large overweight packages of young bees when you want them. Italians or Caucasians.
Weaver Apiaries, Navasota, Texas.

GENUINE THREE BANDED ITALIAN Bees and Queens for 1938. Alamance Bee Company, Geo. Elmo Curtis, Mgr. Graham, N. C.

BOOK YOUR ORDER with me now if want your packages to receive extra care and attention next spring. Hugh Graham, College Station, Texas.

CAUCASIAN QUEENS and Package Bees. Booking orders now for delivery in 1938. Quality stock and service guaranteed.
Bolling Bee Co., Bolling, Ala.

CAUCASIAN PACKAGE BEES. Booking orders now for 1938 delivery at new market agreement prices.
P. B. Skinner Bee Co., Greenville, Ala.

MILLER BROTHERS, Three Rivers Texas, are the only exclusive Caucasian queen breeders west of the Mississippi river.

FOR SALE—Italian Bees and Queens. Nothing but the best. Let us have a portion of your queen and bee trade for 1938. We will please you.
Gradon Bros., Route 2, Greenville, Ala.

HONEY FOR SALE

FOR SALE—Northern white extracted and comb honey.
M. W. Cousineau, Moorhead, Minn.

CHOICE Michigan Clover Honey. New 60's.
David Running, Filion, Michigan.

HONEY FOR SALE—Any kind, any quantity. The John G. Paton Company, 230 Park Avenue, New York.

BUCKWHEAT HONEY famous Helderberg quality in 60's.
H. Greulick & Son, Scotia, N. Y.

FOR SALE—Well ripened clover honey, car lot or local shipments. Will be pleased to submit sample. THE COLORADO HONEY PRODUCERS' ASSN., 1324 Market St., Denver, Colorado.

HONEY FOR SALE—All kinds, any quantity. H. & S. Honey and Wax Company, Inc., 265-267 Greenwich Street, New York.

FOR SALE — Fancy, well ripened, white sweet clover honey in 60-lb. cans. Extra good quality. Dadant & Sons, Hamilton, Ill.

DELICIOUS PALMETTO HONEY in new sixties.
Peter W. Sowinski, Fort Pierce, Florida.

TWO TON choice buckwheat and dark honey in 60's. Stephen Blanchard, Naples, N. Y.

HOWDY'S HONEY—White clover and amber, mixed extracted in sixties. Howard Potter, Ithaca, Michigan.

FOR SALE—No. 1 weight clover comb (discolored some) $4.00 per case of 24 sections. Amber extracted in sixties 7½ cents.
H. G. Quirin, Bellevue, Ohio.

BUCKWHEAT HONEY extracted in sixties, 6½ cents. Clarence Dairymple, Dayton N. Y.

75 CASES buckwheat comb honey No. 1 and No. 2. Write for prices. Noel J. Loucks, Springboro, Pa.

FOR SALE—New York State clover and buckwheat extracted honey in sixty pound cans. Walter Severson, Altamont, New York.

HONEY PACKERS—Write us for prices on carload lots of California and Western Honeys. We stock all varieties. HAMILTON & COMPANY, 108 West Sixth St., Los Angeles, California.

HONEY AND BEESWAX WANTED

WANTED—Extracted Honey. Send sample and price delivered to T. W. Burleson & Son, Waxahachie, Texas.

WANTED—Car lots honey; also beeswax, any quantity. Mail samples, state quantity and price. Bryant & Cookinham, Inc., Los Angeles, California.

WANTED — White and Amber Extracted Honey, any quantity; also beeswax. Write THE FRED W. MUTH CO., Pearl and Walnut Sts., Cincinnati, Ohio.

WANTED—Comb, chunk comb, white and light amber extracted honeys. Any amount. Central Ohio Apiaries, Millersport, Ohio.

WANTED—White and Light Amber extracted honey in carlots or less. Clover Blossom Honey Co., 712 Kossuth St., Columbus, Ohio.

WANTED—Comb, chunk comb and extracted honey. Any amount.
Kedash Brothers, Chillicothe, Ohio.

WANTED—White clover and amber extracted honey. Mail samples and price. The Brundage Brothers Co., Toledo, Ohio.

WILL PAY CASH before you ship for white clover honey. George Anderson, 2838 West Kilbourn, Milwaukee, Wisconsin.

FOR SALE

HONEY CASES AND CANS. Used once. Leon Short, Zion Baking Industry, Zion, Illinois.

BEE SUPPLIES, honey pails and jars. Cash paid for all grades of honey.
A. Tennenhouse, 12213, 12th St. Detroit, Michigan.

FORTY 10-FRAME COLONIES BEES—1½ and 2 story. Disease free. Only $5.50 each if taken promptly. Write MCC, care Valley Bee & Honey Co., Weslaco, Texas.

SELL all or part package outfit. Alonzo McKay, Route 1, Vicksburg, Miss.

WANTED

WANTED—All kinds honey processing machinery. Box 15, care American Bee Journal, Hamilton, Ill.

WAX WANTED—Paying 23 to 24 cents good clear wax double sacked at your station. Wm. Atchley, Upland, Calif.

WANT 500 or more colonies bees to work on shares. Prefer package and queen business. 15 years' experience. Will work for salary. E. F. Day, Honoraville, Ala.

EXPERIENCED and inexperienced help to assist in extracted honey production. Write giving qualifications, wages wanted and references. A. J. Schultz, Ripon, Wisconsin.

SUPPLIES

QUALITY BEE SUPPLIES at money-saving prices. Prompt shipment. We take honey and beeswax in trade. The Hubbard Apiaries, Onsted, Michigan.

BEST QUALITY bees supplies, attractive prices, prompt shipment. Illustrated catalog on request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colorado.

DIFFERENT, that's all. Written and published for the instruction of beekeepers. 52 pages of breezy entertaining beekeeping comment each month. One year, $1.00; two years, $1.50. Sample, 3c stamp.
The Beekeepers Item, San Antonio, Texas.

ATTRACTIVE PRICES on bee supplies and comb foundation. Send for catalog. Saves you money. THE FRED W. MUTH CO., Pearl and Walnut Sts., Cincinnati, Ohio.

FOR SALE—Queen mailing cages. Material, workmanship and service all guaranteed. Write for quantity prices.
Hamilton Bee Supply Co., Almont, Mich.

YOUR WAX worked into dee, cell natural base medium brood foundation for 15c lb., 100 lbs. $11.00, Thin super 22c.
Fred Peterson, Alden, Iowa.

$11.00 IS OUR PRICE for working 100 lbs., of your wax into medium brood. Guaranteed best quality, sample and shipping tags free. Free catalogue tells why we undersell everybody on quality supplies, write. Walter T. Kelley, Co., Paducah, Kentucky.

POULTRY

BIG MONEY in poultry this year. Read Poultry Tribune, the big monthly magazine that tells how leading poultry raisers make money. The only poultry magazine operating its own experimental farm. Five years $1.00, one year trial 25c. Poultry Tribune, Dept. C-61, Mount Morris, Ill.

EXCHANGE

600 COLONIES of bees and equipment in California for bees or equipment anywhere east of the Rockies. Averaged 2 cases this year and 123 lbs. last 3 years.
H. A. Hansen, Sierra Madre, California.

MISCELLANEOUS

PLANS FOR POULTRY HOUSES — All styles; 150 illustrations. Tells you the type to build for your particular locality. Secret of getting winter eggs, and copy of "Inland." Send 25c.
Inland Poultry Journal, Spencer, Indiana.

BOOK BARGAIN—Very slightly damaged copies of Beekeeping in the South by Kenneth Hawkins, cloth bound, published to sell at $1.25, price postpaid only 29 cents.
American Bee Journal, Hamilton, Ill.

THE BEE WORLD—The leading bee journal in Great Britain and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, The Way's End, Foxton, Royston, Herts, England.

Wind Charger Kills Bees

George David, here at Dadant & Sons, reports a case near town where a beekeeper found bees being killed by his wind charger on the roof of the house. Apparently the bees flew in the same direction in which the charger was located and were battered by the flying blades so that many of them were killed and scattered about the neighborhood. It became necessary to run the charger by night to avoid this damage. It is an interesting case.

Meetings and Events

(Continued from page 585)

las Bradshaw, Wendell. The 1938 meeting is to be held in Boise next November. Frank Beach.

—ABJ—

Michigan Counties to Hold Bee School December 4.

A one day bee school will be held in Romeo, at the Romeo Savings Bank, on Saturday, December 4. This will be for all interested beekeepers from Macomb, St. Clair, Oakland, and Lapeer counties. R. H. Kelty, extension apiarist, Michigan State College, will show a five-reel movie on beekeeping and will discuss the following subjects: Wintering bees, package bee management, swarm control, foulbrood control, honey marketing.

E. V. Mock, state apiary inspector, will also attend this meeting to answer questions regarding disease eradication problems.

This meeting will start at 10:00 A. M. William Murphy,
County Agricultural Agent.

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Oregon Broadcast.

Beekeeping broadcasts December 3, 17 and 31 at 12:16 noon over KOAC will be of interest to Oregon beekeepers.

—ABJ—

Honey Tutti Frutti Cookies.

1 cup chopped dates
1 cup seedless raisins
1 cup candied cherries (cut each cherry in 3 or 4 pieces)
1½ cups broken nut meats (break in large pieces)
¼ cup butter
1 cup light honey
3 eggs (well beaten)
1½ cups all-purpose flour
1 cup All Bran
1 teaspoon baking powder
½ teaspoon salt

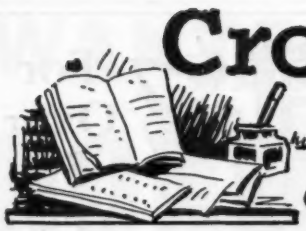
Cream butter and honey well. Add the beaten eggs and mix well. Add the All Bran, fruit, and nut meats which have been well mixed together. Add the flour which has been sifted once before measuring and then sifted two or three times with the baking powder and salt. Drop by spoonfuls on oiled cookie sheet and bake in a rather moderate oven until done.

(This is from Mrs. Florence A. Bodenschatz, of Lemont, Illinois, frequent Illinois winner in honey cookery contests, both in state and national fields.—Editor.)

—ABJ—

Combination Brush and Hive Tool

When brushing bees from combs of honey it requires several extra moves changing from the hive tool for prying out the frames, to the brush for sweeping off the bees. To save some of these extra moves I fastened a piece of flat steel to the handle end of the brush by means of two short screws through holes drilled in the piece of steel, to use as a hive tool. Frank Johnson,
Wisconsin.



Crop and Market Report

COMPILED BY M.G.DADANT

For our December Crop and Market page, we asked reporters to answer the following questions:

1. Condition of bees for winter?
2. Condition of honey plants?
3. How are retail sales of honey?
4. How is jobbing demand?

Condition of Bees.

There shouldn't be any particular concern about the condition of bees entering into winter as far as the colony cluster is concerned even though in some sections the early fall flow was disappointing and there may not be the number of young bees in the cluster that would be desired.

However, we find in many sections that owing to the shortage of the late fall flow, beekeepers have been disappointed in the amount of honey which has been put into the brood chamber. This has resulted in a great deal of fall feeding on the part of the forewarned beekeeper.

However, we are inclined to think that there are an unusual number of colonies going into winter this year with a shortage of food and should the winter prove severe and long, losses are apt to be significantly high.

Numerous reports come that northern beekeepers are killing off their light colonies rather than try to feed and winter through and will depend upon packages to replace the loss in spring.

While it looked earlier that perhaps a shortage of the crop would have the result of a great shortage in the demand for package bees, this will possibly be partly taken up at least by the increasing number of colonies which are going to be sacrificed with the hopes of making up to the original number of colonies by package replacement in the spring.

Most of the southern half of the country is not so affected. However, a short late crop in Arizona does seem to be definite.

The New England states and extending into Ohio similarly, do not seem to be badly affected.

However, it is in the central west and particularly in the plains region that we find these reports more current.

Condition of Honey Plants.

With the exception of a few localities, we have not had any extreme drought this year and most of the sweet clover and white clover plants have come into the early fall season in wonderful shape, offering a good stand of clover for next year.

This, however, was made doubtful from the fact that the late fall rains have not fallen at the time this was written and many sections, therefore, in which there was a fine stand of clovers are now wondering just whether the clovers will be able to survive and spread as usual unless moisture comes soon before the ground freezes up.

The Atlantic coast states have been very fortunate in rainfall and practically the entire south is not deficient. In these sections, therefore, the usual conditions prevail for honey plants or perhaps a little above usual.

There are some sections, particularly the extreme north of Minnesota and the Dakotas, as well as some sections of Ohio, Pennsylvania and New York which have had ample rains. Rainfall, however, generally, has been deficient.

Along the Pacific Coast, conditions are normal and prospects favorable. The intermountain sections also seem to be carrying into the winter season the average amount of the clovers and normal conditions apparently prevail. Perhaps Nebraska and Kansas are the hardest hit of any states, both as to condition of bees and possibility of pasturage carryover.

Retail Sales of Honey.

It is apparent that the retail sales of honey have held up wonderfully well in view of the fact of a heavy fruit crop and the large sorghum and cane crop this year. Added to this we have had an extremely heavy canning season which perhaps should cut down on the volume of retail sales at least until the winter advances.

We believe, however, that this has not been reflected in less demand for honey. As a matter of fact, most reporters are writing that honey sales are very good. This is particularly true in the southeastern states where the honey seems to be cleaning up very rapidly. In the central west, of course, the amount of honey was short. Unfortunately, many beekeepers who formerly supplied customers are not making the effort to purchase honey to keep their customers supplied and again we have the old possibility of these customers going to other sweets and being weaned away by the time another good crop of honey arrives.

Jobbing Demand.

Throughout the entire country, jobbing demand has been excellent. This is particularly true in all sections east of the Rocky Mountains. This is due no doubt to the fact that the smaller beekeeper finds himself with a short crop or no crop at all and is getting out into the market for one ton, two tons or more of honey so that the jobber and carlot buyer has an extra demand to fill.

One thing would seem very strange is that the prices on California honey have not seemed to advance as satisfactorily as those in the mountain regions and further east.

One would ordinarily draw one of two conclusions. Either that the buyers are not active in that section and the market is thus being held down or else the honey still left on hand is of an amber quality and not in so good demand by the jobber and packer. Whatever the case is, we believe that a majority of the carlot honey now left is either in strong hands with the packers or in the California area.

Good white sweet clover honey is hard to find and hard to buy.

Summary.

All in all, we would say that bees are going into winter quarters perhaps in a little less than average condition, honey plants in better than average condition, that the retail demand for honey is at least average and that the jobbing demand is far better than average as no doubt we could expect on account of the short crop.

While there has been no impetus to a great amount of increase in bees next year, probably the package business will hold up to 1937 level through the fact that many light colonies are being destroyed in the north rather than feed and winter through.

The Postscript

GOSSIP ABOUT THE OFFICE IN THE MAKING OF THE MAGAZINE

No sooner do we get settled down with the idea of making the best of an Illinois winter than Jay Smith writes a long letter to tell of all the attractions of Florida where his bananas are in blossom and his papayas are yielding fresh fruit every day. He adds a few notes about his everbearing lemons, the oranges that are beyond description and a few other things such as mangoes, avacadoes, sappadillos and cocoanuts.

Really Florida ought to engage Jay as an evangelist to spread the news about the winter attractions of the state among northern beemen who are dreaming about just such substitutes for northern ice and snow.

———ABJ———

Apparently Jay is learning his beekeeping alphabet all over again down there where the seasons are all turned around. In south Texas we were surprised to find the women canning fruit and vegetables in winter for use in summer when there was little that was fresh to be had.

When we were preparing our bees for winter south Florida beemen were making increase. At that, Florida has plenty of drawbacks as one is likely to discover after a few months' residence. It would seem that the birds have the right system and reduce the discomforts of life to a minimum by living in the south in winter and north in summer. Every year more beekeepers are imitating the birds.

———ABJ———

From E. C. Decock, of Currie, Minnesota, comes a sample of five leaved clover. It resembles the common white Dutch clover in every way except that there are five leaflets on each stem instead of three. His letter indicates that the plant is rather common with him. It appears to be a sport which reproduces itself more readily than is usual in such cases.

———ABJ———

The blue flowered sweet clover, **(Trigonella caerulea)**, seed of which several hundred samples were distributed from this office in 1935, did not prove very successful in most localities. A few, however, reported quite favorably and it may be that under more favorable climatic conditions it might prove useful. We have secured more seed and if any of our readers are interested in giving it further trial we will mail two or three ounces of seed on receipt of 25 cents in stamps to cover office expense in handling.

———ABJ———

We usually think of British beekeepers as small scale operators but a letter from A. W. Gale states that he runs about 1300 "stocks" of bees. While we have a few beemen who operate larger outfits we still look up to the 1300 colony beekeeper as one of the big fellows in the industry. Our impressions are gained from reading the bee magazines. In England the little fellow is featured while over here we play up the big operator. Probably we have as many small apiaries as they have. Perhaps they have as many big ones as we, considering the larger area of this country.

———ABJ———

We learn from Prof. T. M. Stevenson, of Saskatoon, that an annual form of the alpha sweet clover has been developed. We will be glad to give it a trial in our test garden and report its behavior under Iowa conditions. The biennial alpha sweet clover is a very promising plant for regions to which it is adapted. Because of the finer stems it makes better hay than the common sweet clover. Tests thus far indicate that the alpha is not adapted to the climate of much of the United States.

We hope that the annual form will prove more adaptable.

———ABJ———

Specimens of butterweed **(Senecio)** received from Georgia remind us that probably much more honey is gathered from these plants than is generally known. When visiting the Rio Grande Valley of Texas in company with H. B. Parks, the writer learned that **S. mollis** is common over a large area in south Texas in late winter and probably offers considerable bee pasture in favored localities.

There are a number of common names for the members of this family of plants of which "groundsel" is perhaps the most common. Ragwort is another.

———ABJ———

Although there are about thirty species of Senecio on the Pacific Coast we seldom hear them mentioned as honey plants in that region. **S. lobatus** which is common in the southeastern states from Missouri to North Carolina and south to Florida is the one most often mentioned as a source of honey. It seems probable that others may be yielding something to the beekeepers in many places where the source is overlooked.

———ABJ———

Apparently Golden Aster, **(Chrysopsis)**, is another honey plant not generally recognized by the beekeepers. It is sometimes reported as a source of honey in Georgia. There are several species although **C. graminifolia,** is the one most often reported as attractive to the bees. Since related species are found over a wide area it seems probable that more honey comes from Golden Aster than is known.

———ABJ———

Among the beemen who have passed this way recently one must admire the loyalty of our friend Leon Newton, of Orchard, Nebraska, who spends his winters among the city slickers and aristocrats of the east coast of Florida and still sticks to his ten gallon hat. Newton maintains all the traditions of the old time cowmen with whom he started a half century ago.

———ABJ———

And there is Jere Frazer who sells Lewis bee supplies at Springfield, Ohio, but who won't let the Yankees forget that he was born in the old south and is proud of it. (I forgot to tell Jere that my grandfather lived in Savannah before the war between the states.) Jere has to admit that he keeps warm up here in the winter time since it gets so cold that we have to have a fire.

———ABJ———

It was a real surprise to see J. B. Espy, of Washington, who was one of the group to start the Iowa Beekeepers Association twenty-five years ago, before he moved to the apple country in the northwest. Espy goes south every year with the ducks and stays till time to start with the bees in the spring.

———ABJ———

"Bill" Synott, of Minnesota and Mississippi and a few other places, goes by like a fast train at a flag station. "Bill" operates one of the biggest bee outfits in the states and it keeps him busy. The boys told him some tall stories about the duck hunting at Taylor Island and almost persuaded him to play hooky.

———ABJ———

W. A. Jenkins, of Rockport, Missouri, is still enthusiastic about the boom days of Hubam clover when the Field Seed Company had such large acreage near Shenandoah and honey prices still ruled high. Many a beeman is yearning for the return of the "good old days." With changing farm practice, dry seasons and low honey prices they are wondering what to look for next.

———ABJ———

Prof. H. F. Wilson looks us over about once a year to make sure that we don't have anything of importance in the American Bee Journal library which is not included in the Miller Memorial Library at Madison. He is making a great institution of that library which will grow in importance with the years.

FRANK C. PELLETT.

Utilizatization of Honey

(Continued from page 565)

honey because of its superior ability to retain moisture.

The development of only a part of the potential field of industrial utilization of honey as outlined above would be sufficient to stabilize the beekeeping and honey industry of the United States. This would represent a service to consuming industries in view of the undoubted superiority of honey for certain uses when honeys of suitable types are employed under proper conditions. The need for study is greater in the case of honey than for many similar manufactured products, because of the great variability in composition and behavior of honeys obtained from various floral sources.

Notes from Australia

(Continued from page 571)

this method of control and secured the most satisfactory results from virgins not more than four, preferably three, days old. The chief disadvantage of handmating lies in its tediousness and the vast number of queens injured during the manipulation, but I hope this year to experiment with an improved method. Watson's method in the hands of a skilled operator is, of course, the only one the professional queen breeder can resort to with reasonable confidence.

In the U. S. A. it appears to be the practice to tier up the supers above the brood chamber during the honeyflow until five to eight stories becomes the rule. In the photograph of one of Will Grigg's apiaries of South Australia it will be seen that doubles are the usual thing and anywhere one will find eight or ten doubles, but rarely higher. When one super of combs is sealed we extract; the minimum of equipment is the ideal in a country where it is necessary to migrate several times a year. Migration is not carried out because of the profit because there is none at the present price of honey.

I may also mention that through low prices for honey and comparatively high prices for materials thousands of beehives in Australia can show the trade mark of American petrol companies on their interior. Many a sturdy Australian beehive was born in the forests of America, and wasn't there a rush on petrol cases while they were available.

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ILLUSTRATIONS

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